

# Service Manual

dbx\*/Dolby NR-Equipped  
Stereo Double Cassette Deck

Cassette Deck  
**RS-TR555**

Color

(K)...Black Type



## SPECIFICATIONS

### ■ CASSETTE DECK SECTION

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Heads	
(tape deck 1) Rec/play	Permalloy head
Erasing	Double-gap ferrite head
(tape deck 2) Rec/play	Permalloy head
Erasing	Double-gap ferrite head
Motors	
(tape deck 1) Capstan	DC servo motor
Reel table drive	DC motor
(tape deck 2) Capstan	DC servo motor
Reel table drive	DC motor
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC erase
Tape speed	4.8 cm/sec. (1 7/8 ips)
Frequency response	
NORMAL	20 Hz~18 kHz
	20 Hz~17 kHz (DIN)
CrO <sub>2</sub>	20 Hz~18 kHz
	20 Hz~17 kHz (DIN)
METAL	20 Hz~19 kHz
	20 Hz~18 kHz (DIN)
S/N (signal level=max recording level, CrO <sub>2</sub> type tape)	
dbx on	92 dB (A weighted)
Dolby C NR on	74 dB (CCIR)
Dolby B NR on	66 dB (CCIR)
Dolby NR off	56 dB (A weighted)
Wow and flutter	0.07% (WRMS)
(Except P.PC Areas)	±0.2% (DIN)

### Area

Country Code	Area	Color
(P)	U.S.A.	(K)
(PC)	Canada.	(K)
(E, E5)	Continental Europe.	(K)
(EB)	Great Britain.	(K)
(EG)	F.R.G. and Italy (West Germany).	(K)
(GC)	Third Region.	(K)
(GN)	Oceania.	(K)
(PE)	Europe-PX.	(K)
(PX)	Far East-PX	(K)

### Fast forward and rewind time

Approx. 100 seconds with C-60 cassette tape

### Input sensitivity and impedance

LINE 60 mV/47 kΩ

### Output voltage and impedance

LINE 400 mV/800Ω

HEADPHONES

LOAD IMPEDANCE 30 mV/8Ω

(8Ω~600Ω)

### ■ GENERAL

#### Power consumption

22 W

#### Power supply

For U.S.A. and Canada AC 120V, 60Hz

For Great Britain and Oceania AC 240V, 50/60Hz

For Continental Europe AC 220V, 50/60Hz

For others AC 110V/127V/220V/240V, 50/60Hz

#### Dimensions (W×H×D)

430×136×290 mm

(16<sup>15</sup>/<sub>16</sub>"×5<sup>3</sup>/<sub>8</sub>"×11<sup>13</sup>/<sub>32</sub>"

#### Weight

5.5 kg (12.1 lb.)

#### Note:

Specifications are subject to change without notice.  
Weight and dimensions are approximate.

- \* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.
- "DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

\*\* The term dbx is a registered trademark of dbx Inc.

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# Technics

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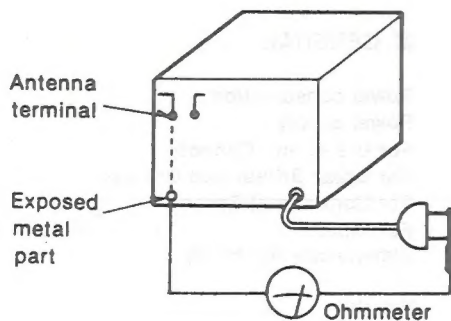
## SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

### INSULATION RESISTANCE TEST

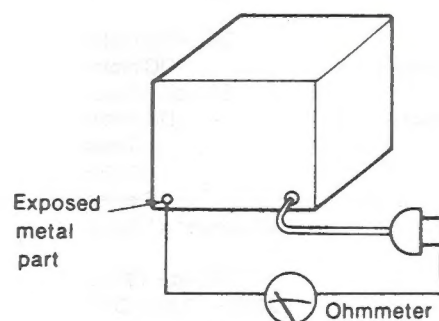
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between  $3\text{M}\Omega$  and  $5.2\text{M}\Omega$  to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

**Note:** Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance =  $3\text{M}\Omega$ — $5.2\text{M}\Omega$



(Fig. B)

Resistance = Approx  $\infty$

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.



Cassette Deck

RS-TR555

## DEUTSCH

## MESSUNGEN UND EINSTELL METHODEN

**Meßinstrumente**

- Elektronisches Voltmeter (EVM)
- Oszilloskop
- Digitaler Frequenzmesser
- Audiofrequenz-Oszillator
- Dämpfungswiderstand
- Gleichstrom-Voltmeter
- Widerstand (600Ω)

**Tonkopf-Azimuteinstellung**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Azimuteinstellung (8kHz, -20dB) ab. Drehen Sie die Azimuteinstellschraube so lange, bis die Abgaben des L-K und R-K den Höchstwert erreichen, und die Lissajossoghe wellenfigur sich, wie abgebildet, 0 Grad nähert.

**Anmerkung:**

When L-K und R-K nicht auf demselben Punkt ihren Höchstwert erreichen, stellen Sie beide Kanäle auf den jeweiligen Höchstwert und gleichen dann aus.

2. Nehmen Sie denselben Einstellvorgang in der Wiedergabestellung vor.

**Prüfung des Pegelunterschiedes bei Vorwärts- und Rückwärtsdrehung**

3. Den Abschnitt für Verstärkungseinstellung (315Hz, 0dB) des Prüfbandes (QZZCFM) wiedergeben und sicherstellen, daß der Pegelunterschied bei Vorwärts- und Rückwärtsdrehung kleiner als 1 dB ist.
4. Nach der Einstellung Schrauben-Sicherungsmittel an die Azimuth-Einstellschraube geben.

**Bandgeschwindigkeits-einstellung****Normale Geschwindigkeit**

1. Den Wahlschalter für Editier-Bandgeschwindigkeit auf "x1" stellen.
2. Den mittleren Teil des Prüfbandes (QZZCWAT) wiedergeben.
3. Deck 1 = VR902 und Deck 2=VR903 so einstellen, daß

**Hohe Geschwindigkeit**

4. Den Wahlschalter für Editier-Bandgeschwindigkeit auf "x2" stellen und den Prüfmoduspunkt und GND verbinden.
5. Den mittleren Teil des Prüfbandes (QZZCWAT) wiedergeben.
6. Deck 1 = VR901 so einstellen, daß der Ausgang dem Sollwert entspricht.

**Einstellung der Wiedergabeverstärkungsregelung**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Einstellung der Verstärkungsregelung (315Hz, 0dB) ab.
2. Stellen Sie VR3 (L-K) [VR4 (R-K)] für Deck 1 und VR5 (L-K) [VR6 (R-K)] für Deck 2 so ein, daß die Abgabe den Normwert erfüllt.

**Wiedergabefrequenzaang**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für den Frequenzgang (315Hz, 12,5kHz~63Hz, -20dB) ab.
2. Achten Sie darauf, daß der Frequenzgang für beide Kanäle (L-K, R-K) in dem in Abb. 6 gezeigten Bereich liegt.

FRANÇAIS

METHODES DES MEASURES ET REGLAGES

Appareils de mesurage

- Voltmètre électronique
  - Oscilloscope
  - Compteur de fréquence numérique
  - Oscillateur de fréquence audio
- A.T.T. (Atténuateur)
  - Voltmètre à C.C.
  - Résistance (600Ω)

Reglage Azimutal de la tete

1. Faire jouer la portion du réglage de l'azimut (8kHz, -20dB) de la bande d'essai (QZZCFM). Ajuster la vis de la mise au point azimutale jusqu'à ce que les sorties du canal de gauche et du canal de droite soient maximisées et que la forme d'onde de Lissajous, comme il est illustré, approche de 0 degré.

**Nota:**  
Si le canal de gauche et canal de droite ne sont pas maximisés au même point, régler le point où les niveaux de chaque canal sont maximisés et égaux.  
2. Effectuer le même r  glage sur le mode d'audition.

V  rification de la diff  rence de niveau pour les deux sens de rotation

3. Introduire une bande m  tal vierge pr  vue pour les essais (QZZCPZ) et v  rifier que la diff  rence de niveau pour les deux sens de rotation est inf  rieure    1dB.  
4. Apr  s cela, mettre une goutte de vernis de blocage sur la vis de r  glage de l'azimut.

R  glage de la vitesse de d  filement Vitesse

- normal**

1. Placer le s  lecteur de vitesse d'  dition sur la position "x1".  
2. Lire la partie centrale de la bande d'essai (QZZCWAT).  
3. R  gler VR902 pour la platine 1 et VR901 pour la platine 2 de mani  re que la sortie ait la valeur standard.
- Grande vitesse**

4. Placer le s  lecteur de vitesse d'  dition sur la position "x2" et relier le point de test et la masse (GND).  
5. Lire la partie centrale de la bande d'essai (QZZCWAT).  
6. R  gler VR901 pour la platine 1 de mani  re que la sortie ait la valeur standard.

Reglage de L'amplification de Lecture

1. Faire jouer la partie r  gl  e de l'amplification (315Hz, 0dB) de la bande d'essai (QZZCFM).  
2. R  gler la platine 1: VR3 (canal de gauche) [VR4 (canal de droite)] et la platine 2: VR5 (canal de gauche) [VR6 (canal de droite)] de telle sorte que la sortie soit en d     de la valeur standard.

Reponse en Frequence de la Lecture

1. Faire jouer la partie de la r  ponse en fr  quence (315Hz, 12.5kHz, -63Hz, -20dB) de la bande d'essai (QZZCFM).  
2. S'assurer que la r  ponse en fr  quence soit en d     de la plage montr  e dans la Fig. 6,    la fois pour le canal de gauche et le canal de droite.

R  glage du courant d'effacement

1. Introduire une bande m  tal vierge pr  vue pour les essais (QZZCRZ) et r  gler l'appareil en mode de pause d'enregistrement.  
2. R  gler VR351 pour la platine 1 et VR301 pour la platine 2 de mani  re que la sortie entre TP9 pour la platine 1 et TP3 pour la platine 2 et GND ait la valeur standard.

Reponse en Frequence Totale

1. Introduire la bande d'essai vierge normale (QZZCRA) et r  gler l'appareil sur le mode d'intermission d'un disque.  
2. Appliquer un signal d'entr  e de r  f  rence (1kHz, -24dB) par l'interm  diaire d'un att  nuateur.  
3. Diminuer le signal de 20dB et r  gler la fr  quence de 50Hz~10kHz.  
4. Enregistrer le balayage de fr  quence.  
5. Faire jouer le signal enregistr   et s'assurer qu'il soit en d     de la plage montr  e    la Fig. 8 en comparaison    la fr  quence de r  f  rence (1kHz).  
6. S'il n'est pas en d     de la plage standard, r  gler VR353 (canal de gauche) [VR352 (canal de droite)] pour la platine 1 et VR303 (canal de gauche) [VR302 (canal de droite)] pour la platine 2 de telle sorte que le niveau de fr  quence soit en d     de la plage standard.  
7. R  p  ter les   tapes 2~6 ci-dessus en utilisant la bande CrO   (QZZCRX) et la bande m  tallis  e (QZZCRX) en augmentant la plage de fr  quence    12.5kHz (50Hz~12.5kHz).  
8. S'assurer que le niveau soit en d     de la plage montr  e    la Fig. 9.

R  glage de L'amplification Totale

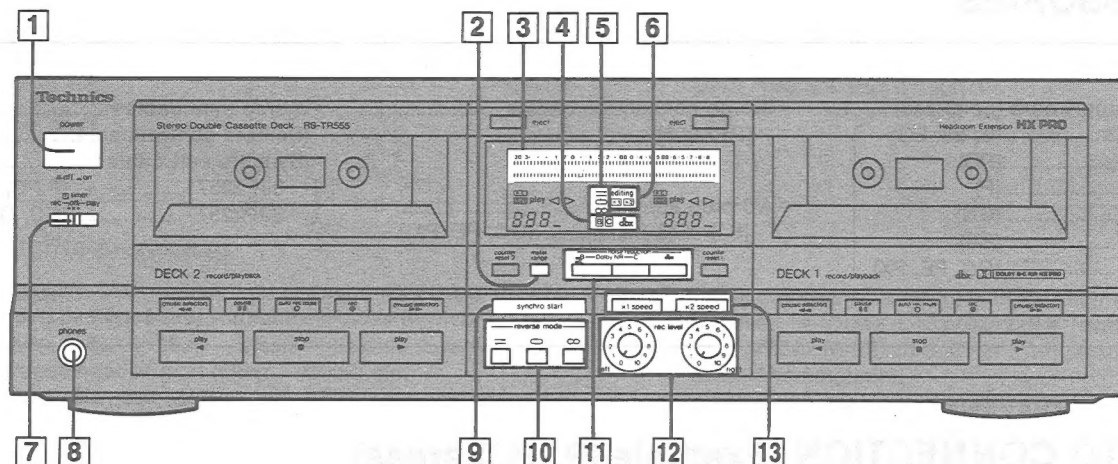
1. Introduire la bande d'essai vierge normale (QZZCRA) et r  gler l'appareil sur le mode d'intermission d'un disque.  
2. Appliquer un signal d'entr  e de r  f  rence (1kHz, -24dB). Diminuer la sortie de telle sorte que son niveau devienne de 0.4V.  
3. Enregistrer ce signal d'entr  e.  
4. Faire jouer le signal enregistr      l'  tape 3 ci-dessus, et s'assurer que la sortie en d     de la valeur standard.  
5. Si elle n'est pas en d     de la valeur standard, r  gler VR101 (canal de gauche) [VR102 (canal de droite)] pour la platine 1 et VR7 (canal de gauche) [VR8 (canal de droite)] pour la platine 2.  
6. R  p  ter les   tapes 2~5 ci-dessus jusqu'   ce que la sortie soit en d     de la valeur standard.

R  glage de la synohronisation dbx

1. Placer l'interrupteur du r  ducteur de bruit sur la position dbx.  
2. Lire la partie de la bande d'essai (QZZCFM) qui contient l'enregistrement pr  vu pour le r  glage du gain.  
3. Brancher un voltm  tre entre TP11 et TP12.  
4. R  gler VR801 de mani  re que la sortie ait la valeur standard.



## LOCATION OF CONTROLS



### Controls common to both decks

#### 1 Power switch (power)

#### 2 Meter-range selector (meter range)

This selector is used to select the input level range shown on the display.

#### 3 Input level meter (peak level)

During playback, this meter indicates the level of the recorded sound.

During recording, it indicates the level being recorded, adjusted by the recording-level controls.

#### 4 Noise-reduction indicators (B, C, dbx)

Each indicator illuminates to show the type of noise-reduction system selected by pressing one of the noise-reduction buttons.

#### 5 Reverse-mode indicators (↔, ↺, ∞)

Each indicator illuminates to show which of the reverse modes was selected by the reverse-mode selectors.

#### 6 Edit-recording tape-speed indicators (editing, ×1, ×2)

The word "editing" and either the "×1" or "×2" indicator illuminate to show which of the tape-to-tape recording speeds was selected when pressing one of the edit-recording tape-speed buttons.

#### 7 Timer switch (timer)

This switch is used to automatically begin a tape recording or tape playback at a certain time, selected by an optional timer.

#### 8 Headphones jack (phones)

#### 9 Synchro-start button (synchro start)

This button is used to start a tape-to-tape recording, simultaneously starting tape deck 1 (the playback deck) and tape deck 2 (the recording deck).

#### 10 Reverse-mode selectors (reverse mode)

These selectors are used for selection of the reverse mode (for either playback or recording).

#### 11 Noise-reduction buttons (noise reduction)

These buttons are used to reduce the hiss noise heard from tape. This unit is provided with the Dolby B NR-type and C NR-type, and dbx noise-reduction systems.

#### 12 Recording-level controls (rec level)

These controls are used to regulate the recording level of both tape decks.

#### 13 Edit-recording tape-speed buttons (speed)

These buttons are used to select the recording speed during edit-recording.

ESPAÑOL

METODOS DE AJUSTE Y MEDIDA

Instrumento de medición

- EVM (Voltmetro electrónico)
  - Osciloscopio
  - Frecuencímetro digital
  - Oscilador AF
- ATT (Atenuador)
  - Voltmetro CC
  - Resistor (600Ω)

Ajuste Azimutal de Cabeza

1. Reproducir la porción de ajuste azimutal (8kHz, -20dB) de la cinta de prueba (QZZCFM). Variar el tornillo de ajuste azimutal hasta que las salidas del CH-I y CH-D se maximicen y forma de onda de lissajous, como ilustrado, se acerque a grado 0.

Nota:

Si CH-I y CH-D no son maximizados en el mismo punto, ajustar al punto donde los niveles de cada canal sean maximizados e igualados.

2. Efectuar el mismo ajuste en la modalidad de reproducción.

Comprobación de la diferencia de nivel de giro hacia adelante y hacia atrás

3. Reproduzca la parte del ajuste de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM) y luego asegúrese de que la diferencia de nivel de giro hacia adelante y hacia atrás sea menor que 1 dB.
4. Después del ajuste, aplique pintura de fijación al tornillo de ajuste del azimut.

Ajuste de la Velocidad de la Cinta

Velocidad normal

1. Lleve a "x1" el selector de la velocidad de la cinta de edición.
2. Reproduzca la sección central de la cinta de prueba (QZZCWAT).
3. Ajuste la platina 1 = VR902 y la platina 2 = VR903 de modo que la salida quede comprendida dentro de los valores estándares.

Alta velocidad

4. Lleve a "x2" el selector de la velocidad de la cinta de edición y conecte GND y el punto de la modalidad de prueba.
5. Reproduzca la sección central de la cinta de prueba (QZZCWAT).
6. Ajuste la platina 1 = VR901 de modo que la salida quede comprendida dentro de los valores estándares.

Ajuste de Ganancia de Reproduccion

1. Reproducir la porción ajustada de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM).

2. Ajustar la Platina 1: VR3 (CH-I) [VR4 (CH-D)] y la Platina 2: VR5 (CH-I) [VR6 (CH-D)] de manera que la salida esté dentro del valor estándar.

Respuesta de Frecuencia de Reproduccion

1. Reproducir la parte de respuesta de frecuencia de reproducción (315Hz, 12.5kHz~63Hz, -20dB) de la cinta de prueba (QZZCFM).

2. Asegurarse de que la respuesta de frecuencia esté dentro de la gama mostrada en la Fig. 6 para ambos CH-I y CH-D.

Ajuste de la Corriente de Borrado

1. Inserte la cinta de prueba metálica en blanco (QZZCRZ) y ponga el aparato en la modalidad de pausa de grabación.

2. Regule la platina 1=VR351 y la platina 2=VR301 de modo que la salida entre la platina 1=TP9 y la platina 2=TP3 y GND esté dentro de los valores estándares.

Respuesta de Frecuencia Total

1. Poner una cinta virgen normal (QZZCRA) y poner la unidad en la modalidad de Pausa de Grabación.

2. Aplicar la señal de entrada de referencia (1kHz, -24dB) a través de un atenuador.

3. Atenuar la señal por 20dB y ajustar la frecuencia de 50Hz~10kHz.

4. Grabar el barrido de frecuencia.

5. Reproducir la señal grabada y asegurarse de que esté dentro de la gama mostrada en la Fig. 8 en comparación con la frecuencia de referencia (1kHz).
6. Si no está dentro de la gama de frecuencia, ajustar la platina 1=VR353 (CH-I) [VR352 (CH-D)] y la platina 2=VR303 (CH-I) [VR302 (CH-D)] de manera que el nivel de frecuencia esté dentro de la gama estándar.

7. Repetir los pasos 2~6 de arriba utilizando la cinta CrO<sub>2</sub> (QZZCRX) y la cinta metálica (QZZCRZ) incrementando la gama de frecuencia a 12.5kHz (50Hz~12.5kHz).

8. Asegurarse de que el nivel esté dentro de la gama mostrada en la Fig. 9.

Ajuste de Ganancia Total

1. Insertar la cinta de prueba en blanco normal (QZZCRA) y poner la unidad en modalidad de pausa de Grabación.

2. Aplicar la señal de entrada de referencia (1kHz, -24dB). Atenuar la salida de manera que su nivel se haga 0.4V.

3. Grabar la señal de entrada.
4. Reproducir la señal grabada en el paso 3 de arriba y asegurarse de que la salida esté dentro del valor estándar.

5. Si no está dentro del valor estándar, ajustar la platina 1=VR101 (CH-I) [VR102 (CH-D)] y la platina 2=VR7 (CH-I) [VR8 (CH-D)].

6. Repetir el paso 2~5 de arriba hasta que la salida esté dentro del valor estándar.

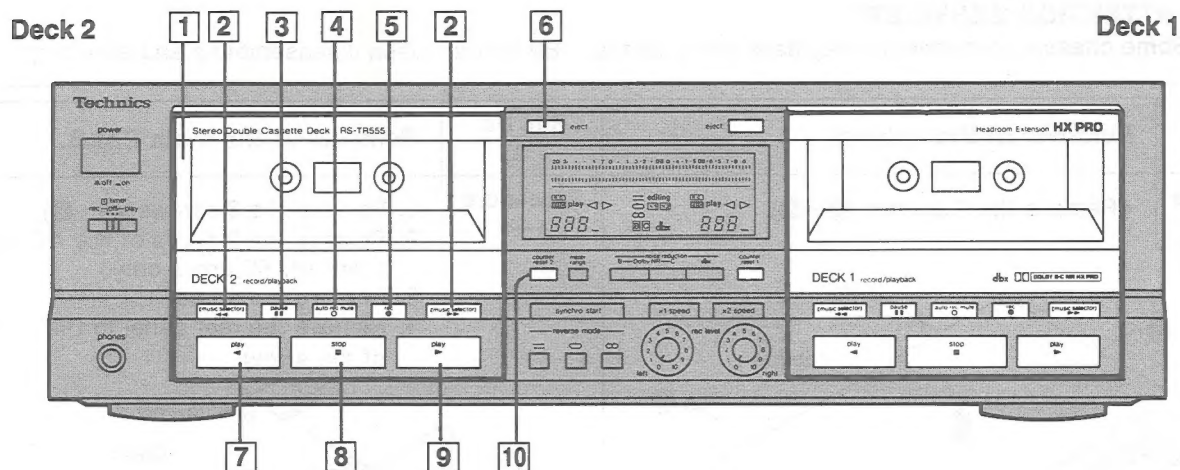
Ajuste de la Sincronizacion dbx

1. Ponga el conmutador de reducción del ruido en la posición dbx.

2. Reproduzca la parte del ajuste de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM).
3. Conecte un voltmetro de CC entre TP11 y TP12.

4. Regule VR801 de modo que la salida esté dentro de los valores estándares.





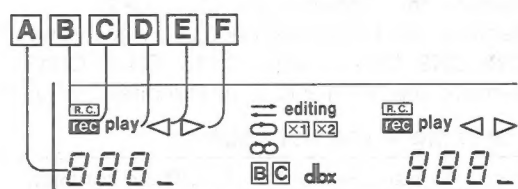
### Controls applicable to deck 1 and 2

Both tape deck 1 and tape deck 2 have the same controls, indicators, etc., and have the same functions, so the following explanation, although for tape deck 2, is equally applicable to tape deck 1.

- 1 Cassette holder**
- 2 Rewind/fast-forward/search button [music selector <</>>]**  
These buttons are used to advance or rewind the tape, or to easily and quickly search for the tune's beginning of the tape.
- 3 Pause button (pause/II)**  
This button is used to temporarily stop the tape playback or recording of the deck.
- 4 Automatic-record-muting button (auto rec mute/□)**  
This button is used to make a silent interval on the tape while recording is in progress.
- 5 Record button (rec/●)**  
This button is used to set the deck to the recording stand-by mode.
- 6 Eject button (eject)**  
This button is used to open the cassette holder.
- 7 Reverse-side playback button (play/◀)**  
This button is used to start the playback or recording of side "B" of the cassette.  
(The tape will move in the right-to-left direction.)
- 8 Stop button (stop/■)**  
This button is used to stop the tape movement.
- 9 Forward-side playback button (play/▶)**  
This button is used to start the playback or recording of side "A" of the cassette.  
(The tape will move in the left-to-right direction.)

- 10 Tape counter reset button (counter reset 1/2)**  
This button is used to reset the tape counter indication to "000".

### Indicators applicable to deck 1 and 2

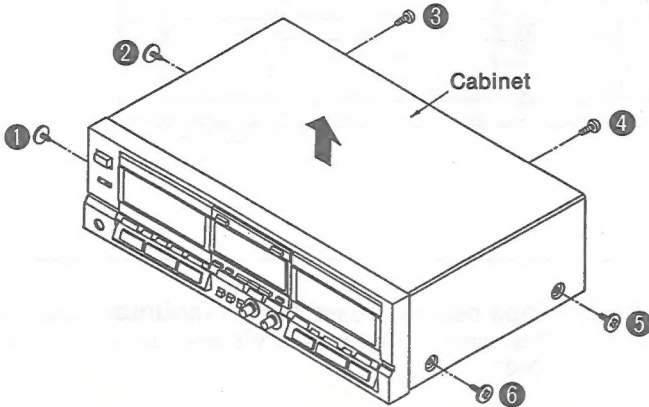
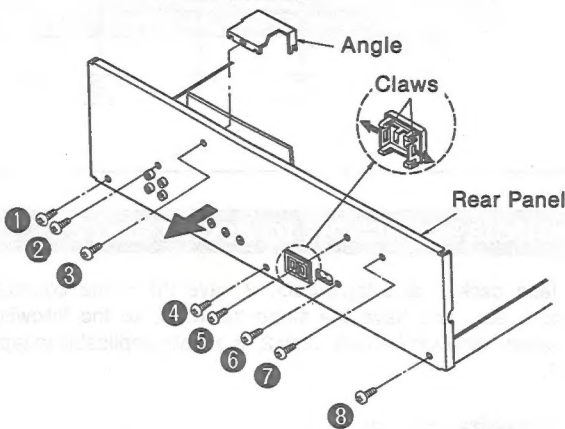
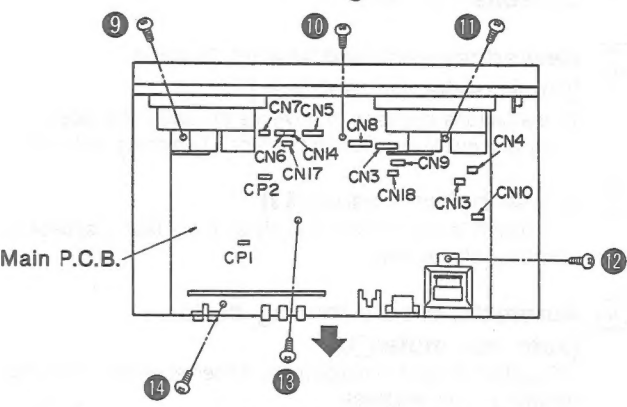

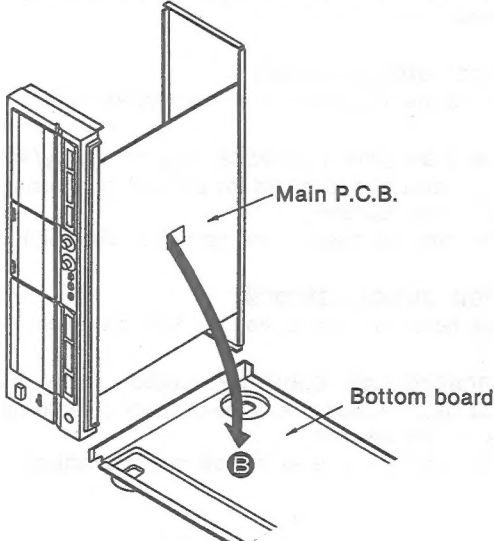
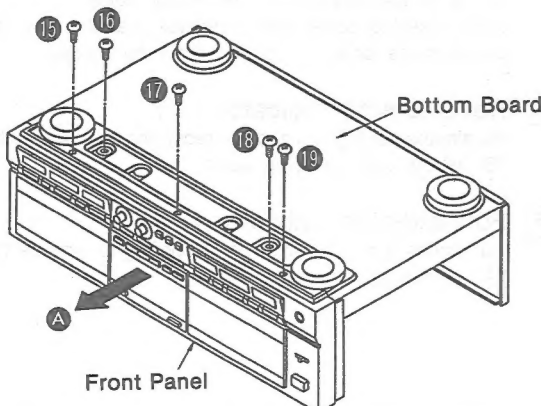


- A Tape counter**  
Indicates the amount of tape movement.
- B Remote-control indicator (R.C.)**  
Illuminates to indicate that this unit can now be controlled by the remote-control transmitter.
- C Recording indicator (rec)**  
Illuminates to indicate that this unit is in the recording stand-by or recording mode.
- D Playback indicator (play)**  
When this indicator illuminates steadily, it indicates that this unit is in the playback or recording mode.  
When flashing continually, indicates that this unit is in the pause mode or the recording stand-by mode.
- E Reverse-side indicator (<)**  
Illuminates during playback or recording to indicate that side "B" of the tape is being used.
- F Forward-side indicator (>)**  
Illuminates during playback or recording to indicate that side "A" of the tape is being used.

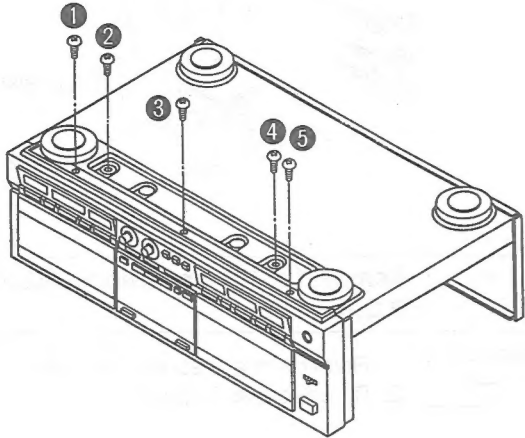
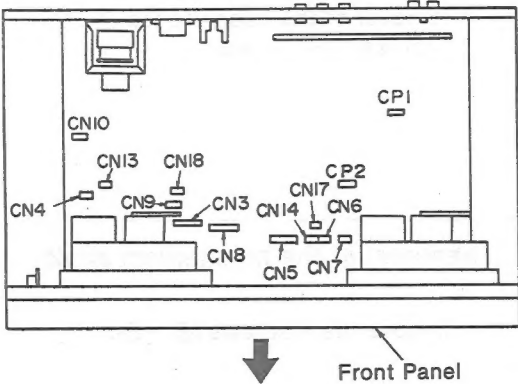
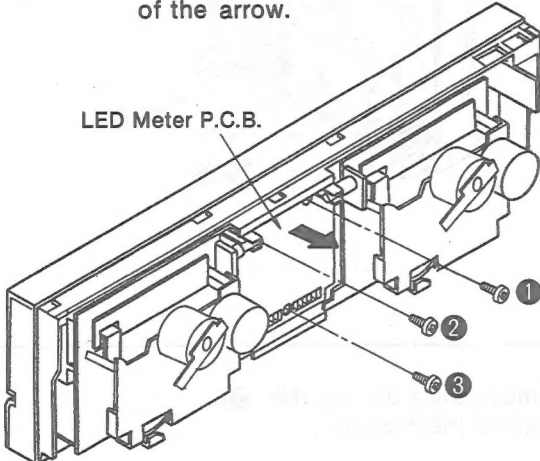
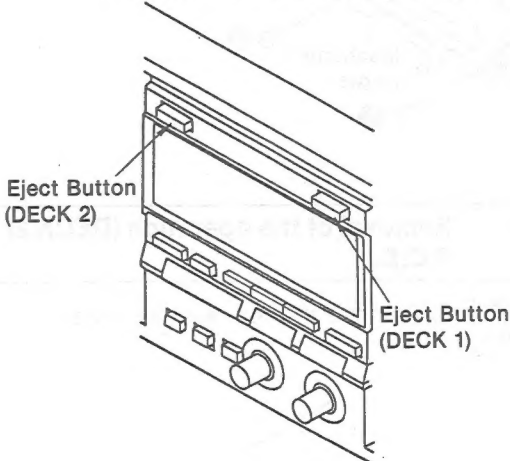
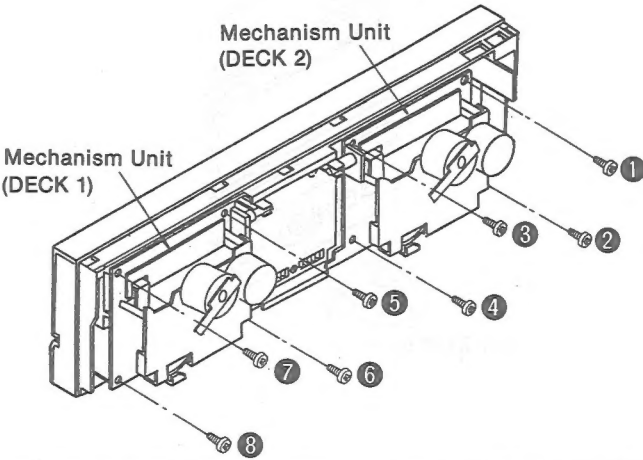
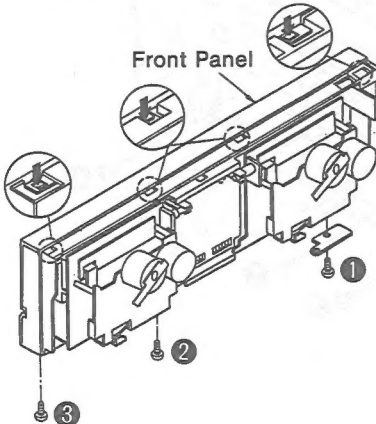
## DISASSEMBLY INSTRUCTIONS

### "ATTENTION SERVICER"

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

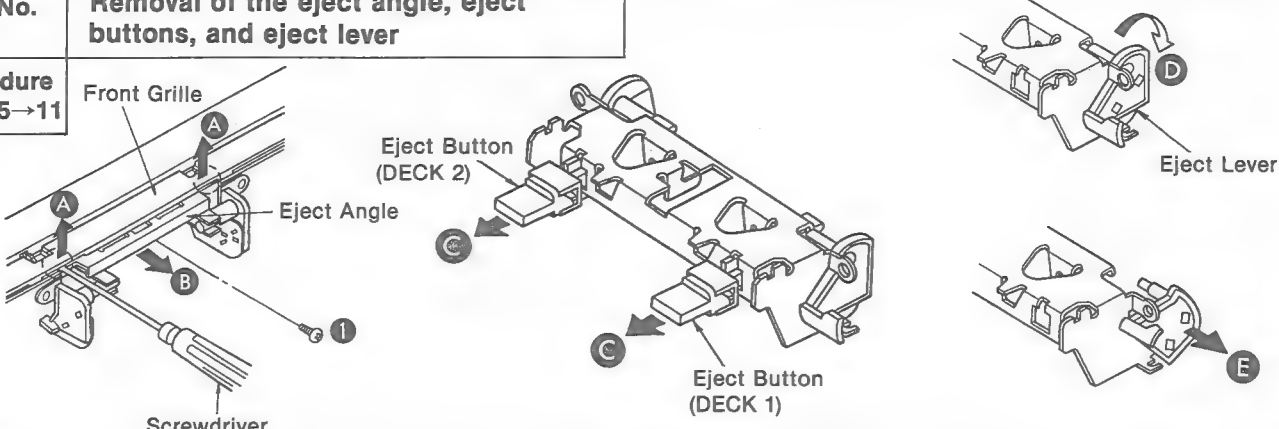
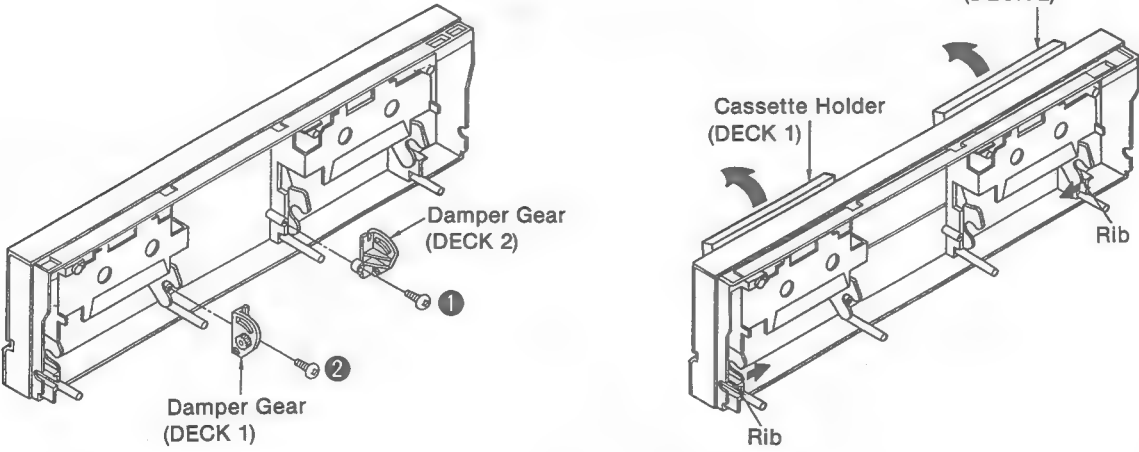
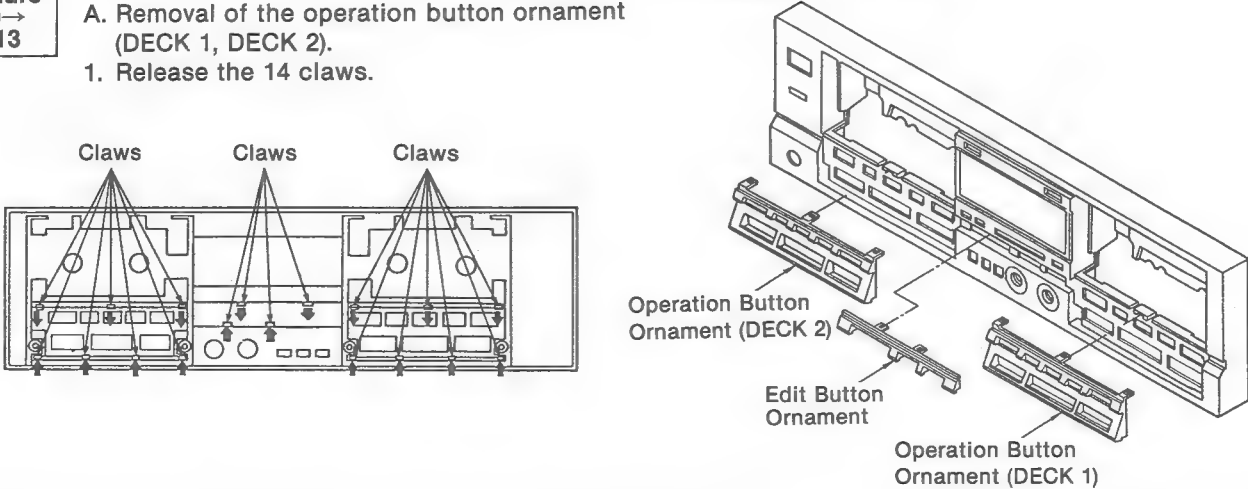
Ref. No. 1	Removal of the cabinet	Ref. No. 2	Removal of the main P.C.B.
Procedure 1	<ul style="list-style-type: none"> <li>Remove the 6 screws (①~⑥).</li> </ul>	Procedure 1→2	<ol style="list-style-type: none"> <li>Remove the 8 screws (①~⑧).</li> <li>Release the 2 claws of the AC outlet cover. (P, PC areas only.)</li> <li>Remove the angle.</li> <li>Remove the rear panel in the direction of the arrow.</li> </ol>
			
	<ol style="list-style-type: none"> <li>Remove the 6 screws (⑨~⑭).</li> <li>Remove the 2 connectors (CP1, CP2).</li> <li>Remove the 12 flat cables (CN3, CN4, CN5, CN6, CN7, CN8, CN9, CN10, CN13, CN14, CN17, CN18).</li> <li>Remove the main P.C.B. in the direction of the arrow.</li> </ol>		
	<h4>How to remove the flat cable</h4> <ul style="list-style-type: none"> <li>Pull out the flat cable while pressing the connector.</li> </ul> <ol style="list-style-type: none"> <li>Lift the connector.</li> <li>Pull out the flat cable.</li> </ol> 		<ol style="list-style-type: none"> <li>Remove the bottom board in the direction of the arrow B.</li> <li>Reinstall the front panel to the main P.C.B.</li> </ol> 
	<h4>How to check the main P.C.B.</h4> <ul style="list-style-type: none"> <li>When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show.</li> </ul> <ol style="list-style-type: none"> <li>Remove the 14 screws (①, ④, ⑧~⑯).</li> <li>Remove the front panel in the direction of the arrow A.</li> </ol> 		



<b>Ref. No.</b> 3	<b>Removal of the front panel</b>	2. Remove the 2 connectors (CP1, CP2). 3. Remove the 12 flat cables (CN3, CN4, CN5, CN6, CN7, CN8, CN9, CN10, CN13, CN14, CN17, CN18). 4. Remove the front panel in the direction of the arrow.	
<b>Procedure</b> 1→3	1. Remove the 5 screws (①~⑤).	 	
<b>Ref. No.</b> 4	<b>Removal of the LED meter P.C.B.</b>	<b>Ref. No.</b> 5	<b>Removal of the mechanism units</b>
<b>Procedure</b> 1→3→4	1. Remove the 3 screws (①~③). 2. Remove the meter P.C.B. in the direction of the arrow.	<b>Procedure</b> 1→3→5	• Mechanism unit (DECK 2) 1. Push the eject button. 2. Remove the 4 screws (①~④).  • Mechanism unit (DECK 1) 1. Push the eject button. 2. Remove the 4 screws (⑤~⑧).
			
<b>Ref. No.</b> 6	<b>Removal of the front panel</b>		
<b>Procedure</b> 1→3→6	1. Remove the 3 screws (①~③). 2. Release the 4 claws.		
			

<div>Ref. No. 7</div>	<div>Removal of the power switch P.C.B., timer switch P.C.B. and headphones P.C.B.</div>	<div><div>Power switch P.C.B.</div><div>Timer Switch P.C.B.</div><div>Headphones P.C.B.</div><div>Claw</div><div>1</div><div>2</div><div>3</div></div>	
<div>Procedure 1→3→7</div>	<div>• Removal of the power switch P.C.B. 1. Remove the 2 screws (①, ②). • Removal of the timer switch P.C.B. 1. Remove the 1 screw (③). • Removal of the headphones P.C.B. 1. Release the 1 claw.</div>		
<div>Ref. No. 8</div>	<div>Removal of the mechanism angle</div>	<div>Ref. No. 9</div>	<div>Removal of the operation (DECK 1) P.C.B.</div>
<div>Procedure 5→8</div>	<div>• Remove the 4 screws (①~④).</div>	<div>Procedure 5→8→9</div>	<div>1. Remove the 2 screws (①, ②). 2. Release the 5 claws.</div>
<div><div>Mechanism Angle</div><div>1</div><div>2</div><div>3</div><div>4</div></div>		<div><div>Operation (DECK 1) P.C.B.</div><div>Claws</div><div>Claws</div><div>1</div><div>2</div></div>	
<div>Ref. No. 10</div>	<div>Removal of the operation (DECK 2) P.C.B.</div>	<div>2. Remove the 5 screws (①~⑤). 3. Release the 8 claws.</div>	
<div>Procedure 5→8→10</div>	<div>1. Remove the rec level 2 knobs.</div>	<div><div>Operation (DECK 2) P.C.B.</div><div>Claws</div><div>Claw</div><div>Claws</div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div>	
<div><div>Rec Level Knob</div></div>			



<b>Ref. No.</b> 11	<b>Removal of the eject angle, eject buttons, and eject lever</b>	 <p>Front Grille</p> <p>Eject Angle</p> <p>Eject Button (DECK 2)</p> <p>Eject Button (DECK 1)</p> <p>Eject Lever</p> <p>Screwdriver</p> <ol style="list-style-type: none"> <li>1. Remove the 1 screw (①).</li> <li>2. Lift the front grille slightly using a screw driver etc. in the direction of the arrow ①, and take out the eject angle in the direction of the arrow ②.</li> <li>3. Pull out the eject buttons in the direction of the arrow ③.</li> <li>4. Turn the eject lever in the direction of the arrow ④, and remove the eject lever in the direction of the arrow ⑤.</li> </ol>
<b>Ref. No.</b> 12	<b>Removal of the cassette holder (DECK 1 &amp; DECK 2)</b>	<ol style="list-style-type: none"> <li>1. Remove the 2 screws (①, ②).</li> <li>2. Remove the damper gear.</li> <li>3. Remove the rib in the direction of the arrow.</li> <li>4. Remove the cassette holder in the direction of the arrow.</li> </ol>  <p>Damper Gear (DECK 2)</p> <p>Damper Gear (DECK 1)</p> <p>Cassette Holder (DECK 2)</p> <p>Cassette Holder (DECK 1)</p> <p>Rib</p>
<b>Ref. No.</b> 13	<b>Removal of the operation buttons ornament and edit button ornament</b>	<ol style="list-style-type: none"> <li>A. Removal of the operation button ornament (DECK 1, DECK 2).         <ol style="list-style-type: none"> <li>1. Release the 14 claws.</li> </ol> </li> <li>B. Removal of the edit button ornament.         <ol style="list-style-type: none"> <li>1. Release the 4 claws.</li> </ol> </li> </ol>  <p>Claws</p> <p>Claws</p> <p>Claws</p> <p>Operation Button Ornament (DECK 2)</p> <p>Edit Button Ornament</p> <p>Operation Button Ornament (DECK 1)</p>

**ERASE CURRENT ADJUSTMENT**

1. Insert the metal blank test tape (QZZCRZ) and set the unit to the record pause mode.
2. Adjust Deck 1=VR351 and Deck 2=VR302 so that the output between Deck 1=TP9 and Deck 2=TP3 and GND is within the standard value.

**Standard value:  $200 \pm 5$  mA (Metal)...EVM Reading:  $200 \pm 5$  mV**

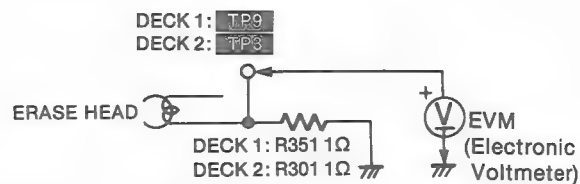


Fig. 7

**OVERALL FREQUENCY RESPONSE**

1. Insert the normal blank test tape (QZZCRA) and set the unit to the record pause mode.
2. Apply a reference input signal (1 kHz, -24 dB) through an attenuator.
3. Attenuate the signal by 20dB and adjust the frequency from 50Hz~10kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in Fig. 8 in comparison to the reference frequency (1 kHz).
6. If it is not within the standard range, adjust Deck 1=VR353 (L-CH) VR352 (R-CH) and Deck 2=VR303 (L-CH) [VR302 (R-CH)] so that the frequency level is within the standard range.
  - Level up in high frequency range .....Increase the bias current.
  - Level down in high frequency range ...Decrease the bias current.
7. Repeat steps 2~6 above using the CrO<sub>2</sub> tape (QZZCRX) and the metal tape (QZZCRZ) increasing the frequency range to 12.5kHz (50Hz~12.5kHz).
8. Assure that the level is within the range shown in Fig. 9.

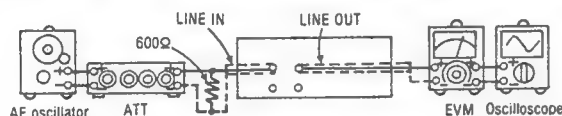


Fig. 10

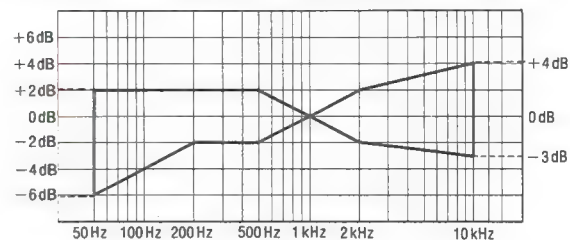
**Normal Overall frequency response chart (NR OUT)**

Fig. 8

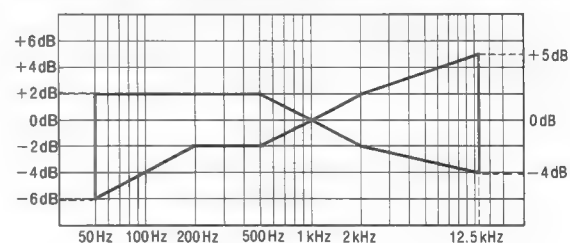
**CrO<sub>2</sub> Metal Overall frequency response chart (NR OUT)**

Fig. 9

**OVERALL GAIN ADJUSTMENT**

1. Insert the normal blank test tape (QZZCRA) and set the unit to the record pause mode.
2. Apply a reference input signal (1 kHz, -24 dB). Attenuate the output so that its level becomes 0.4V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.
5. If it is not within the standard value, adjust Deck 1=VR101 (L-CH) [VR102 (R-CH)] and Deck 2=VR7 (L-CH) [VR8 (R-CH)].
6. Repeat the step 2~5 above until the output is within the standard value.

**Standard value:  $0.4V \pm 0.5$  dB**

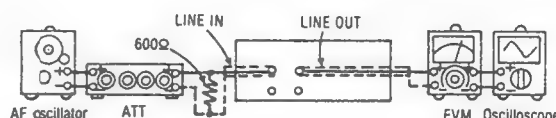


Fig. 11

**dbx TIMING ADJUSTMENT**

1. Shift the noise reduction switch to the dbx position.
2. Playback the gain adjustment portion (315 Hz, 0 dB) of the test tape (QZZCFM).
3. Connect a DC voltmeter across TP11 and TP12.
4. Adjust VR801 so that the output is within the standard value.

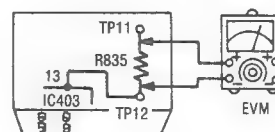





Fig. 12

**Standard value: DC  $18.4$  mV  $\pm 0.5$  mV**



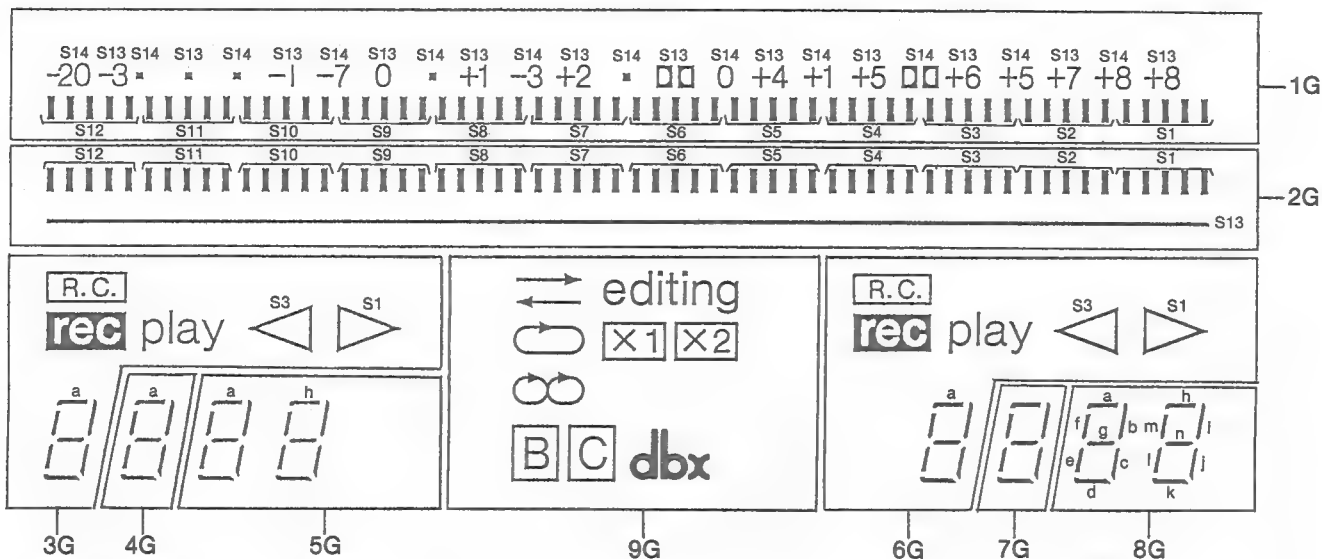
## ■ TERMINAL FUNCTION OF IC's

• IC901 (M50746-147SP): MICROCOMPUTER (This microcomputer is used for mechanical operation)

Pin No.	Mark	I/O Division	Function
1	V <sub>CC</sub>	I	Power supply terminal
2	AV <sub>SS</sub>	—	• Connected to V <sub>SS</sub>
3	V <sub>REF</sub>	I	Standard voltage terminal (5V)
4	CAPM 1	O	Deck 1 capstan motor ON/OFF control signal • "L" level in capstan motor is off mode. • "H" level in capstan motor is on mode.
5	CAPM 2	O	Deck 2 capstan motor ON/OFF control signal • "L" level in capstan motor is off mode. • "H" level in capstan motor is on mode.
6	RP 2	O	Deck 2 reel pulse signal
7	RP 1	O	Deck 1 reel pulse signal
8	HISP 2	O	Deck 2 capstan motor speed control • "L" level when normal speed (X1). • "H" level when high speed (X2).
9	HISP 1	O	Deck 1 capstan motor speed control • "L" level when normal speed (X1). • "H" level when high speed (X2).
10	QREV 2	I	Deck 2 quick detector signal
11	KEY 2	I	Key switch scan (DECK 2: STOP, F.F., REW, F. PLAY, R. PLAY, REC., PAUSE, S. START, X2, X1, DOLBY C, B, dbx)
12	KEY 1	I	Key switch scan (DECK 1: STOP, F.F., REW, F. PLAY, R. PLAY, REC., PAUSE, M. RANGE,  ,  ,  )
13	QREV 1	I	Deck 1 quick detector signal
14	TREC	I	Timer rec terminal
15	TPLAY	I	Timer play terminal
16	RINH 2	I	Deck 2 reverse rec. Inh. switch select terminal
17	FINH 2	I	Deck 2 forward rec. Inh. switch select terminal
18	REEL 2	I	Deck 2 rotation pulse signal of reel table
19	ARM 2	I	Deck 2 auto rec. mute terminal. "L"=KEY ON, "H"=KEY OFF
20	RENA	O	B side select signal to CD player, used during CD synchro editing mode.
21	RMT 1	O	Rec. amp. mute signal of deck 1 • "L" level in mute is on mode. • "H" level in mute is off mode.
22	RMT 2	O	Rec. amp. mute signal of deck 2 • "L" level in mute is off mode. • "H" level in mute is on mode.
23	DMT	O	Line out mute signal • "L" level in muting is off mode. • "H" level in muting is on mode.
24	BIAS 1	O	Deck 1 bias OSC ON/OFF control signal • "L" level in bias OSC is on mode. • "H" level in bias OSC is off mode.
25	BIAS 2	O	Deck 2 bias OSC ON/OFF control signal • "L" level in bias OSC is on mode. • "H" level in bias OSC is off mode.
26	POF	I	Primary AC power detection terminal
27	CNV <sub>SS</sub>	—	Connected to GND
28	RESET	I	Reset terminal • "L" level when reset is on mode. • "L" → "H" level when reset is off mode.
29	XIN	I	Clock OSC terminal
30	XOUT	O	
31	φ	—	Not used, open.
32	V <sub>SS</sub>	—	Connected to GND
33	TEST	I	Test terminal

## INTERNAL CONNECTION OF FL

### • Grid connection diagram



### • Anode connection table

	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1		n	-		n	-			
S2		j	-	play	j	-	play		
S3		l	-		l	-			
S4	editing	k	-	R.C.	k	-	R.C.		
S5	-	h	-	rec	h	-	rec		
S6	x2	a	a	a	a	a	a		
S7	x1	b	b	b	b	b	b		
S8	-	f	f	f	f	f	f		
S9	B	g	g	g	g	g	g		
S10	C	c	c	c	c	c	c		
S11	dbx	e	e	e	e	e	e		
S12	-	d	d	d	d	d	d		
S13	-	i	-	-	i	-	-	—————	S13
S14	-	m	-	-	m	-	-	-	S14

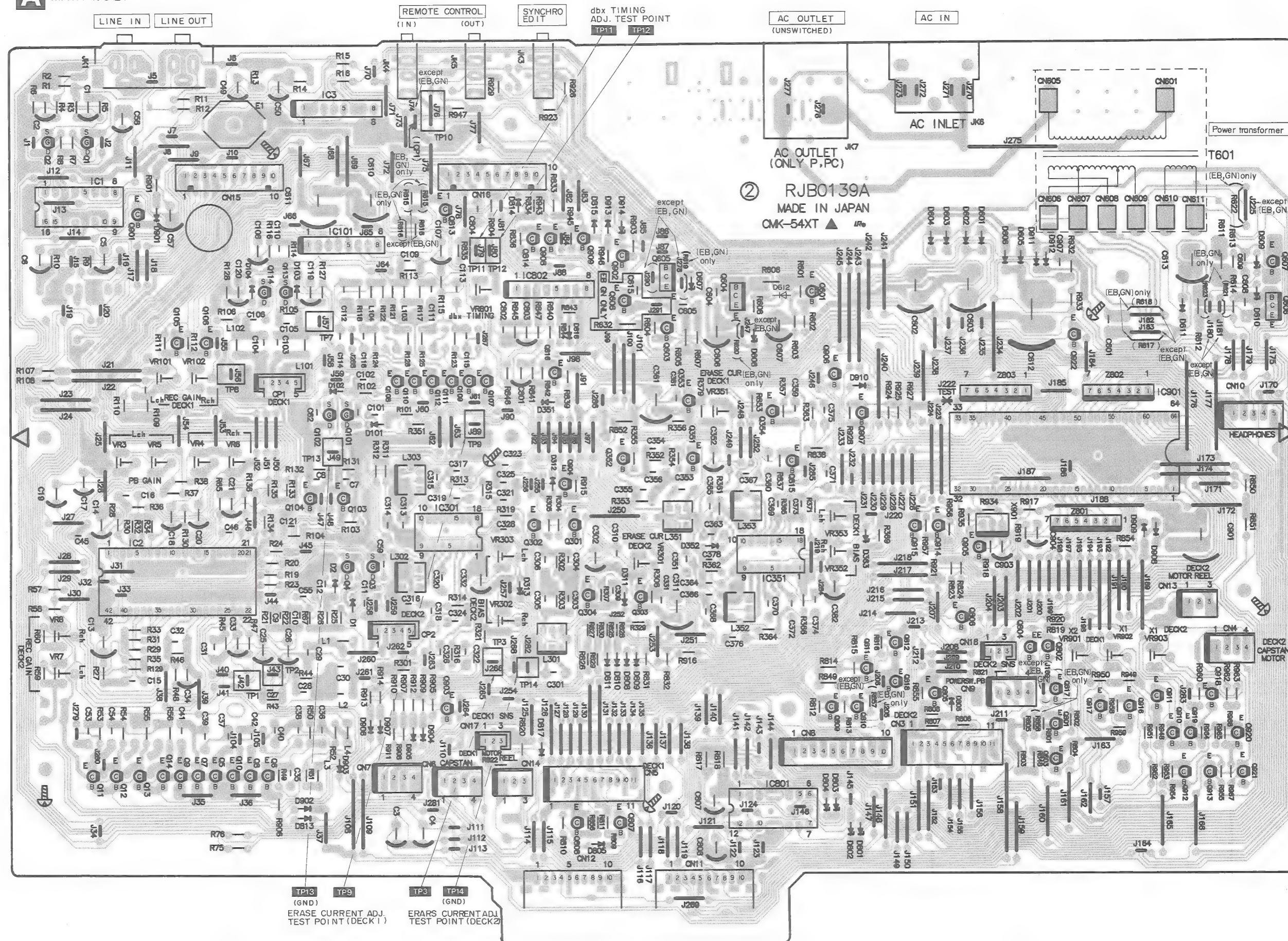
### • Pin connection

PIN NO.	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F 2	F 2	N P	N P	N P	S 12	S 11	S 10	S 9	S 8	S 7	S 6	S 5	S 4	S 3	S 2	S 1	N P	S 14	S 13	N P	9 G	8 G	7 G	6 G	5 G	4 G	3 G	2 G	1 G	N P	N P	N P	F 1	F 1



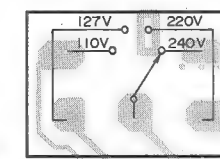
# PRINTED CIRCUIT BOARDS

**A** MAIN P.C.B.



Power Source For (GC)

VOLTAGE SELECT



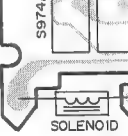
VOLTAGE SELECT

**K** OPERA

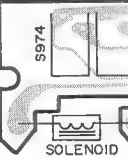
PLAY

MUSIC SELECT

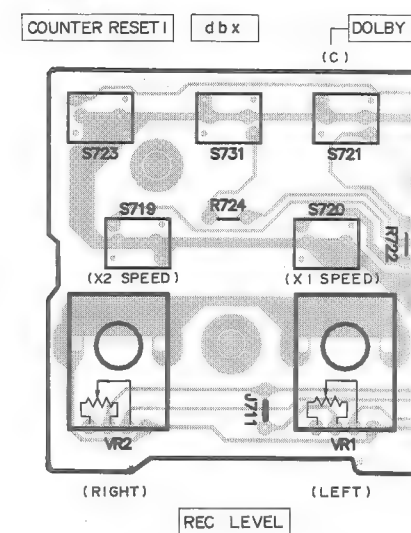
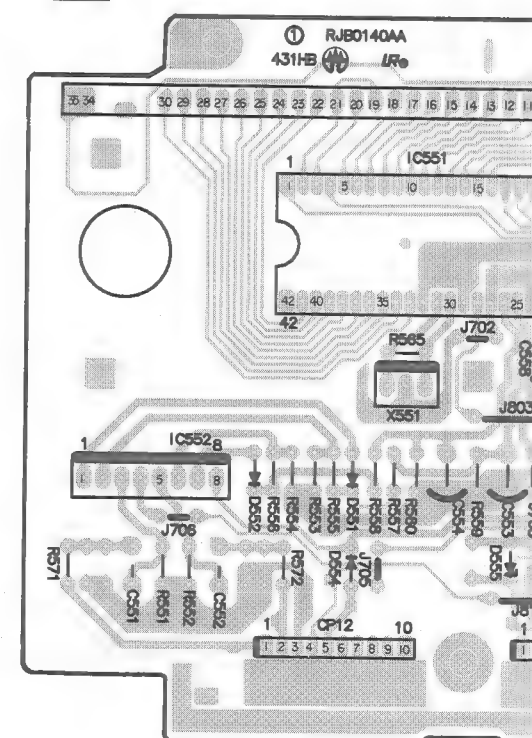
**B** MECH



**D** MECH













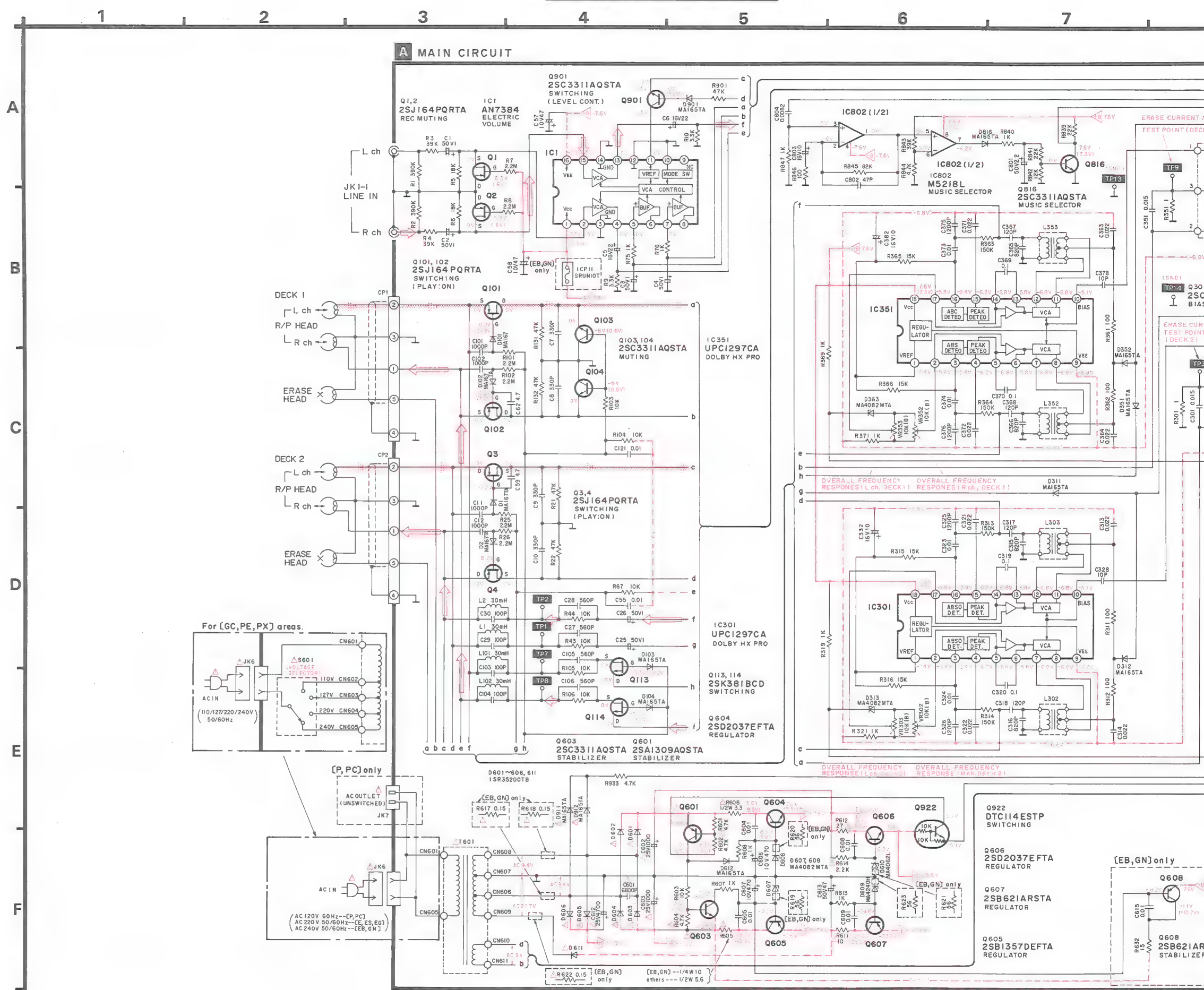
# SCHEMATIC DIAGRAM

(Parts list on pages 37~43.)

(This schematic diagram may be modified at any time with development of new technology.)

## Notes:

- S601 : Voltage selector switch in "240V" position. (110V~127V~220V~240V) (GC, PE, PX) areas only)
- S701 : DECK 1 Stop switch in "off" position.
- S702 : DECK 1 F.F. (music selector) switch in "off" position.
- S703 : DECK 1 Rew. (music selector) switch in "off" position.
- S704 : DECK 1 For. Playback switch in "off" position.
- S705 : Reverse mode selector switch (→) in "off" position.
- S706 : Reverse mode selector switch (○) in "off" position.
- S707 : Reverse mode selector switch (∞) in "off" position.
- S708 : DECK 2 Auto rec. mute switch in "off" position.
- S709 : DECK 1 Rev. Playback switch in "off" position.
- S710 : Meter-range selector switch in "off" position.
- S711 : DECK 2 Stop switch in "off" position.
- S712 : DECK 2 F.F. (music selector) switch in "off" position.
- S713 : DECK 2 Rew. (music selector) switch in "off" position.
- S714 : DECK 2 For. Playback switch in "off" position.
- S715 : DECK 2 Rev. Playback switch in "off" position.
- S716 : DECK 2 Record switch in "off" position.
- S717 : DECK 2 Pause switch in "off" position.
- S718 : Synchro-start switch in "off" position.
- S719 : Editing tape-speed selector (X2) in "off" position.
- S720 : Editing tape-speed selector (X1) in "off" position.
- S721 : Dolby C NR switch in "off" position.
- S722 : Dolby B NR switch in "off" position.
- S723 : Tape counter reset 1 switch in "off" position.
- S724 : Tape counter reset 2 switch in "off" position.
- S725 : Power switch in "on" position.
- S726 : Timer switch in "off" position.
- S728 : DECK 1 Record switch in "off" position.
- S729 : DECK 1 Pause switch in "off" position.
- S730 : DECK 1 Auto rec. mute switch in "off" position.
- S731 : dbx Noise-reduction switch in "off" position.
- S971, S971A : DECK 1, 2 Mode switch in "off" position.
- S972, S972A : DECK 1, 2 Cassette half detection switch in "off" position.
- S973, S973A : DECK 1, 2 Rev. Rec Inhibit switch in "off" position.
- S974, S974A : DECK 1, 2 For. Rec Inhibit switch in "off" position.
- S975, S975A : DECK 1, 2 ATS (CrO<sub>2</sub>) switch in "off" position.
- S976, S976A : DECK 1, 2 ATS (Metal) switch in "off" position.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. 1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
- ( ) .....Voltage values at record mode.
- For measurement us EVM.
- Important safety notice  
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- ( ———— < + B > ———— ) indicates + B (bias).
- ( ———— < - B > ———— ) indicates - B (bias).
- ( ..... ) indicates the flow of the playback signal.
- ( ———— ) indicates the flow of the record signal.













Q905  
2SC3311AQSTA  
SWITCHING  
(RESET)

Q813,814,902,903,908,909  
DTA114ESTP  
SWITCHING(dbx/B/C,X2, ENCODE/DECODE)

Q906  
DTA114ESTP  
SWITCHING  
(CD EDIT)

TEST TERMINAL

IC901  
M50746-14TSP  
MICRO COMPUTER

IC3  
M5218L  
HEADPHONES AMP

HEADPHONES  
CIRCUIT

F TIMERSWITCH  
CIRCUIT

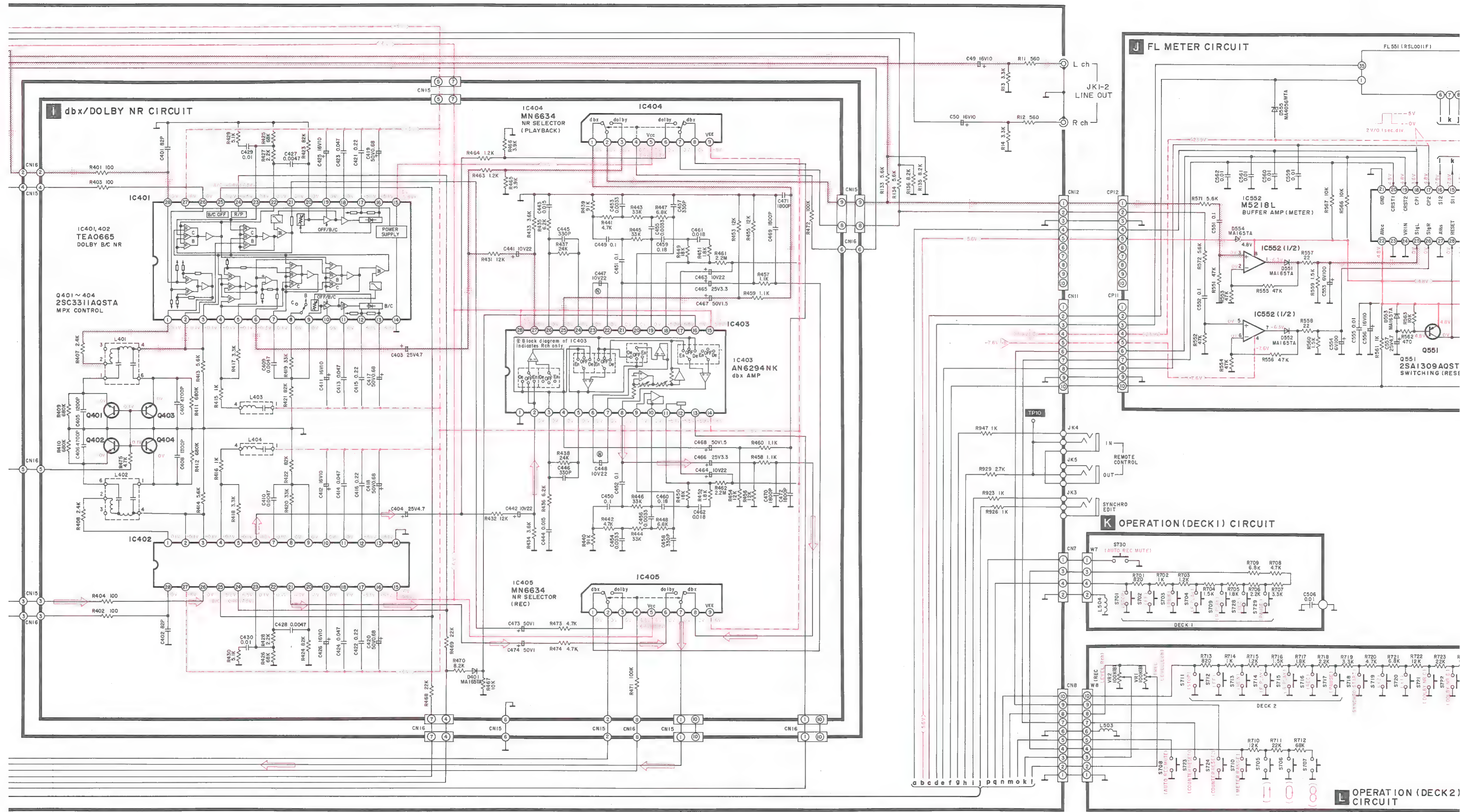
G POWER  
SWITCH  
CIRCUIT

dbx/DOLBY NR CIRCUIT

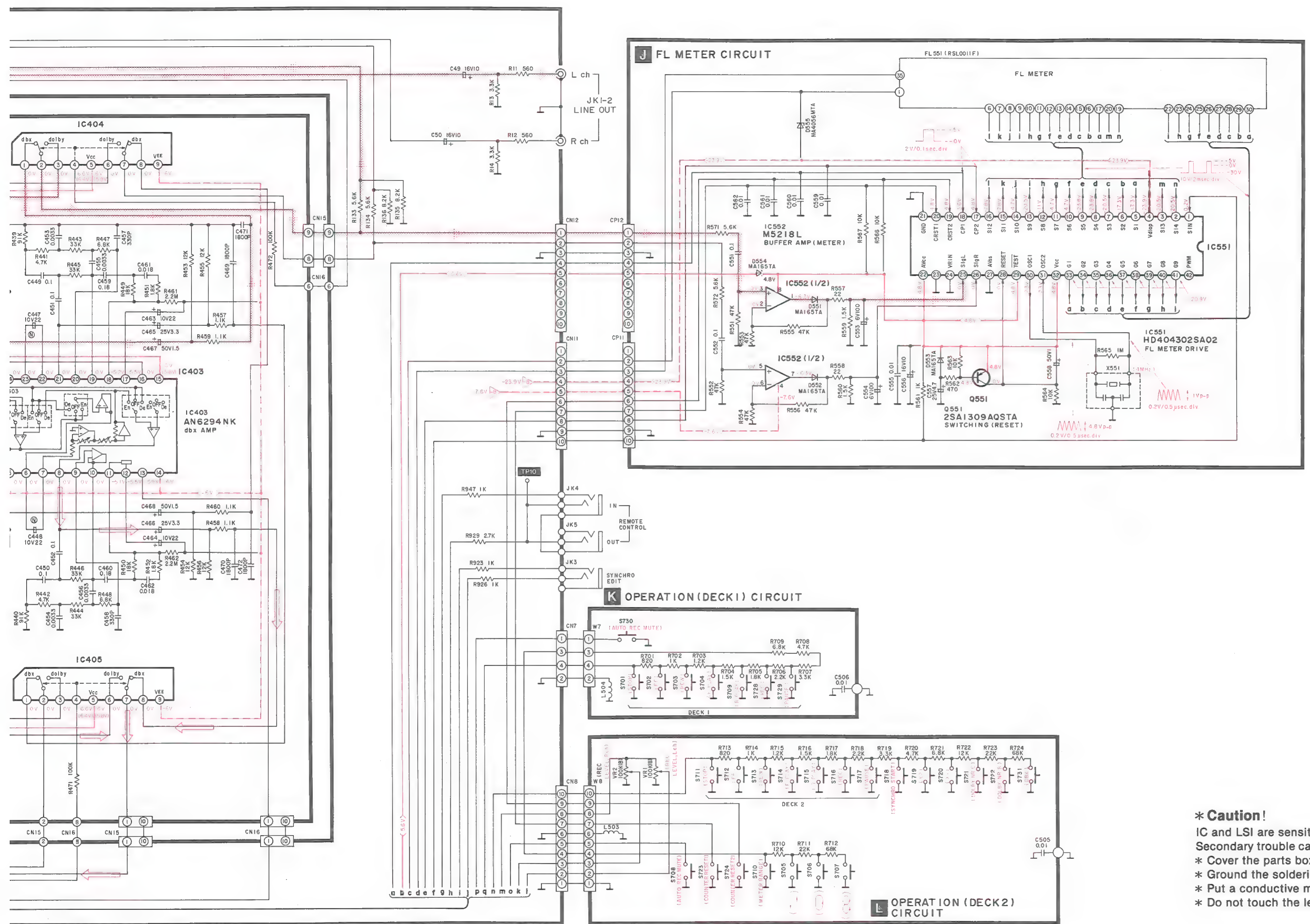
IC401,402  
TEA0665  
DOLBY B/C NR

Q401 ~ 404  
2SC3311AQSTA  
MPX CONTROL



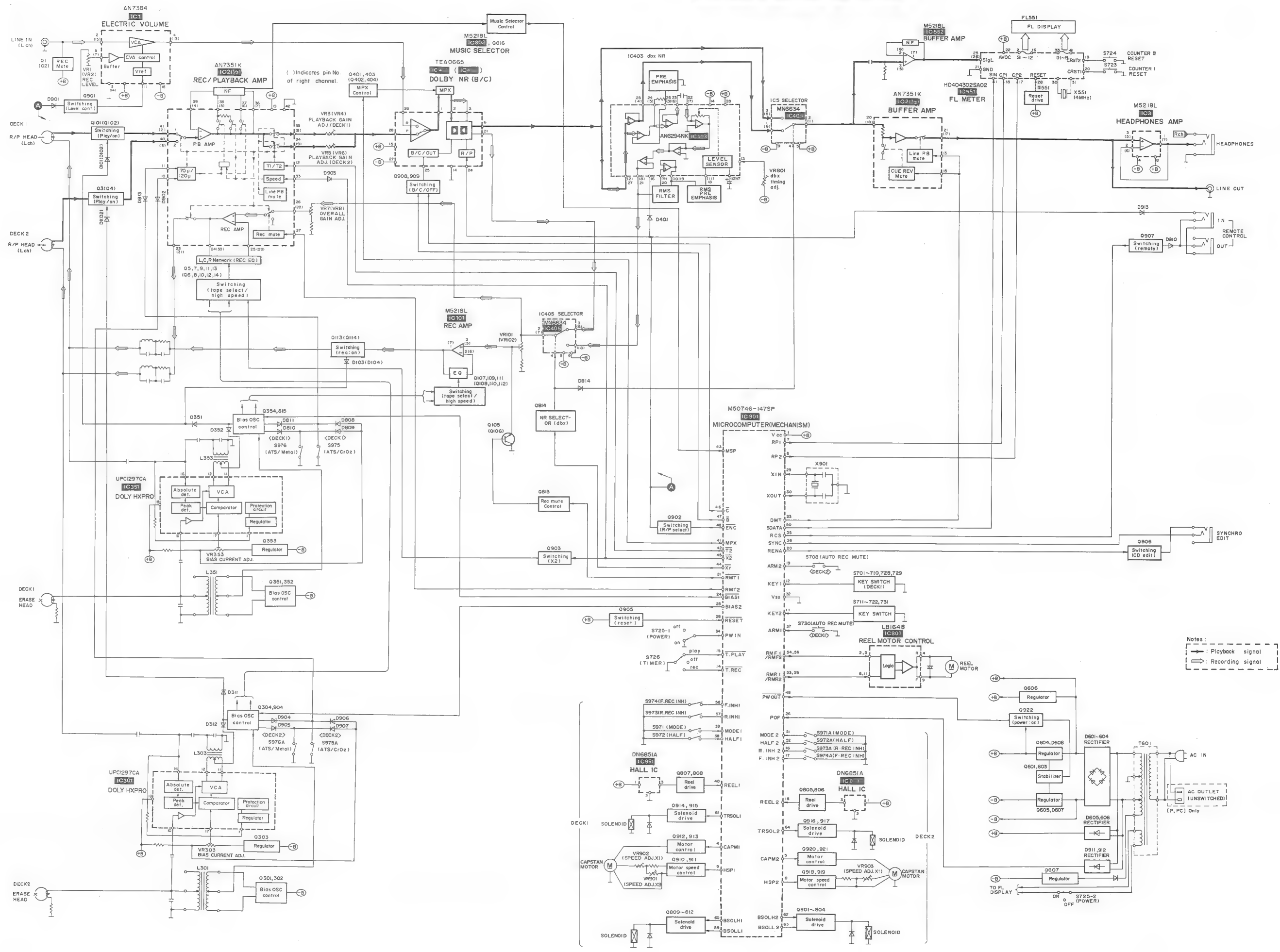


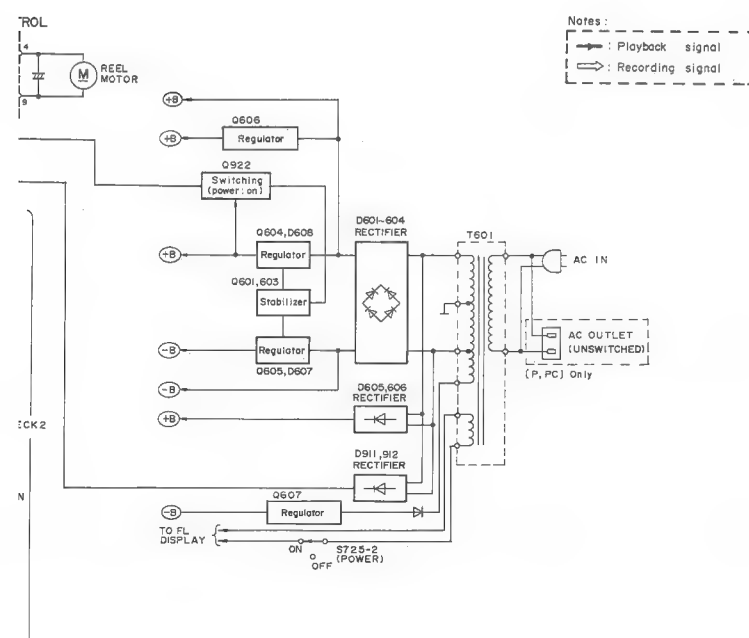
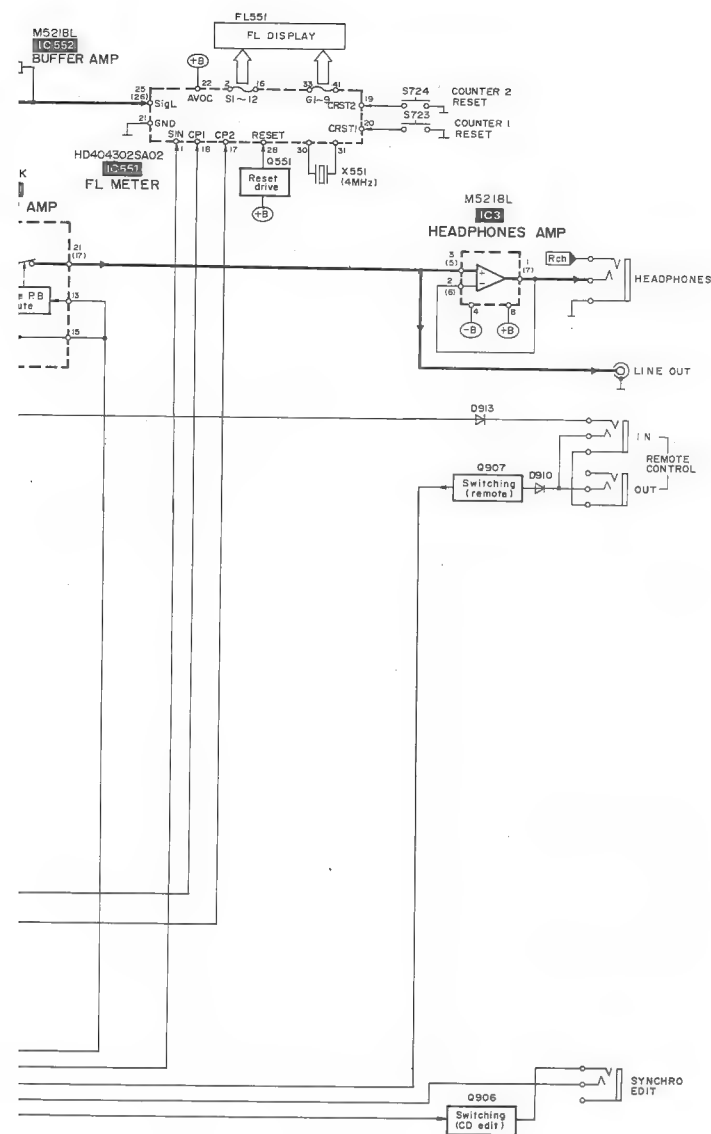




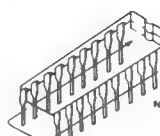
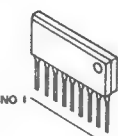
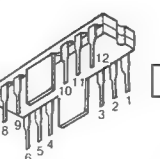
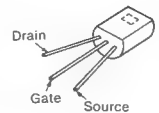
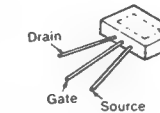
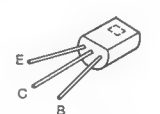
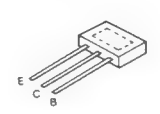
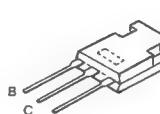
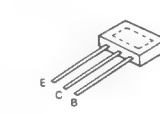
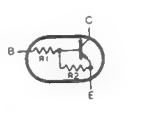
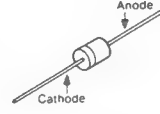
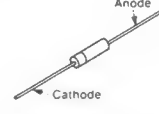
**\* Caution!**  
IC and LSI are sensitive to static electricity.  
Secondary trouble can be prevented by taking care during repair.  
\* Cover the parts boxes made of plastics with aluminum foil.  
\* Ground the soldering iron.  
\* Put a conductive mat on the work table.  
\* Do not touch the legs of IC or LSI with the fingers directly.

BLOCK DIAGRAM

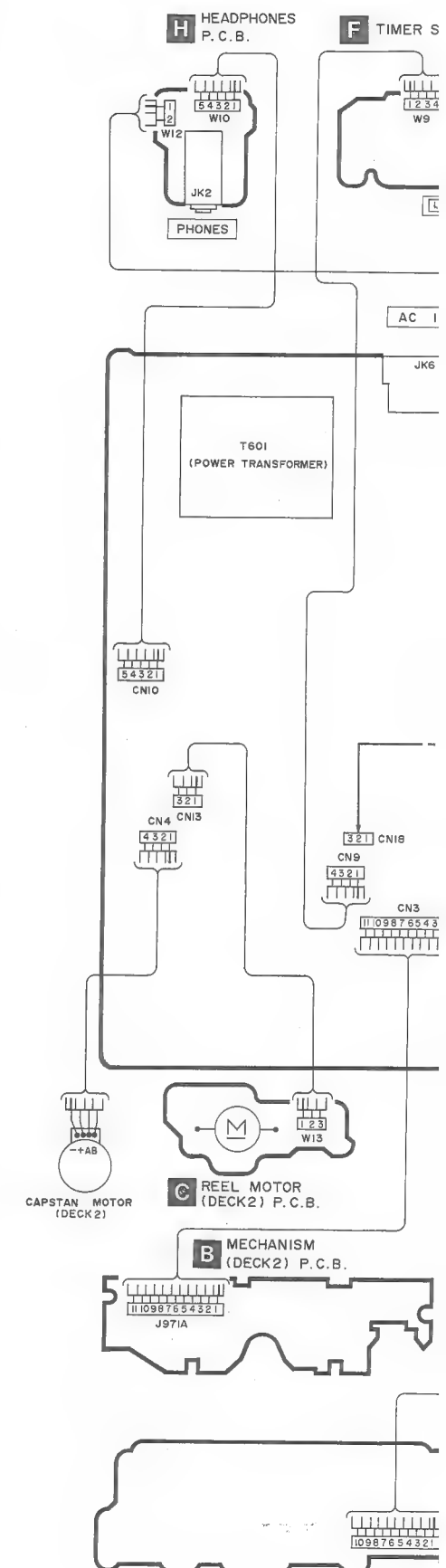




## TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

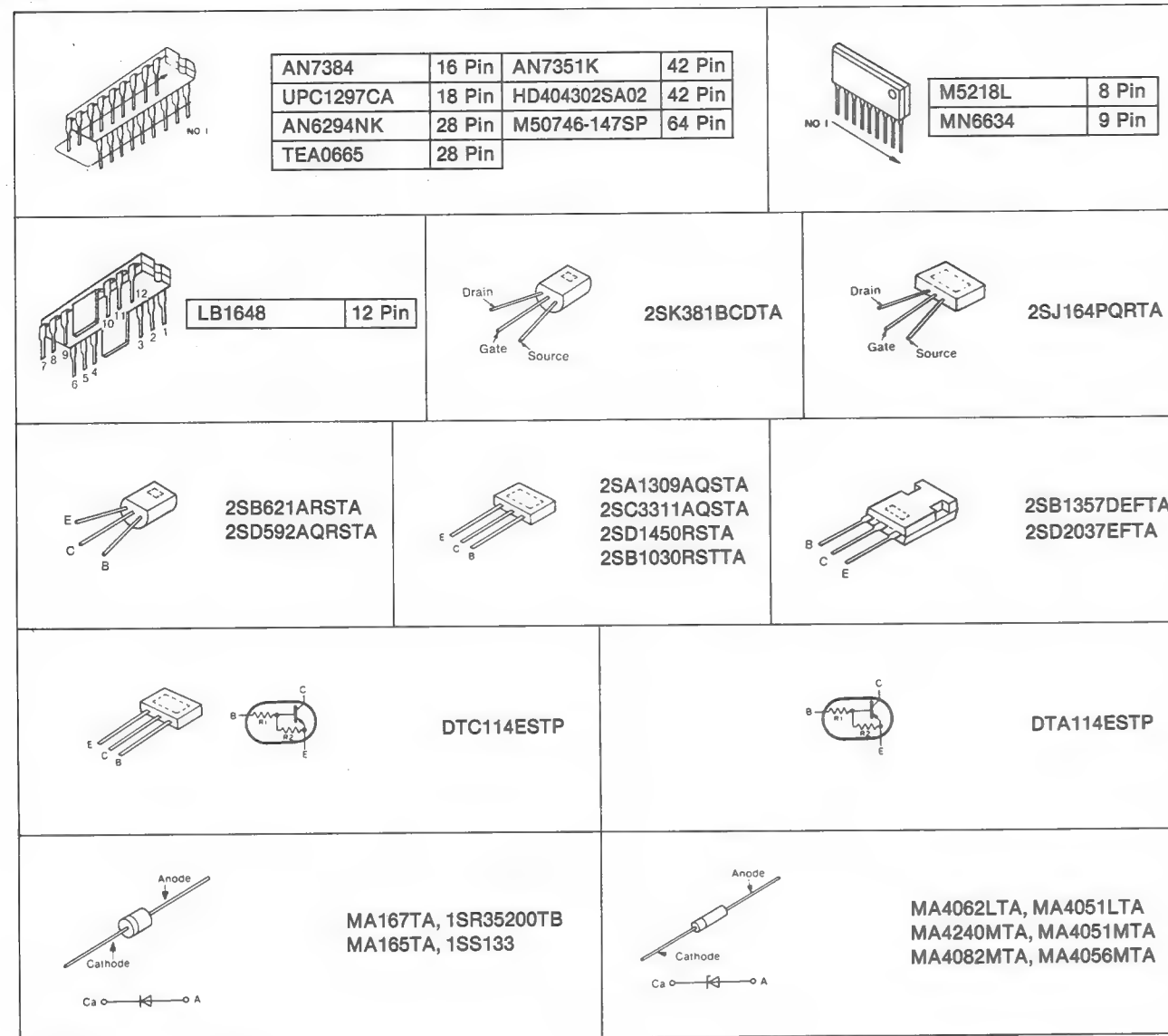
	<table><tr><td>AN7384</td><td>16 Pin</td><td>AN7351K</td><td>42 Pin</td></tr><tr><td>UPC1297CA</td><td>18 Pin</td><td>HD404302SA02</td><td>42 Pin</td></tr><tr><td>AN6294NK</td><td>28 Pin</td><td>M50746-147SP</td><td>64 Pin</td></tr><tr><td>TEA0665</td><td>28 Pin</td><td></td><td></td></tr></table>	AN7384	16 Pin	AN7351K	42 Pin	UPC1297CA	18 Pin	HD404302SA02	42 Pin	AN6294NK	28 Pin	M50746-147SP	64 Pin	TEA0665	28 Pin				<table><tr><td>M5218L</td><td>8 Pin</td></tr><tr><td>MN6634</td><td>9 Pin</td></tr></table>	M5218L	8 Pin	MN6634	9 Pin
AN7384	16 Pin	AN7351K	42 Pin																				
UPC1297CA	18 Pin	HD404302SA02	42 Pin																				
AN6294NK	28 Pin	M50746-147SP	64 Pin																				
TEA0665	28 Pin																						
M5218L	8 Pin																						
MN6634	9 Pin																						
	<table><tr><td>LB1648</td><td>12 Pin</td></tr></table>	LB1648	12 Pin		2SK381BCDTA		2SJ164PQRTA																
LB1648	12 Pin																						
	2SB621ARSTA 2SD592AQRSTA		2SA1309AQSTA 2SC3311AQSTA 2SD1450RSTA 2SB1030RSTTA		2SB1357DEFTA 2SD2037EFTA																		
	DTC114ESTP		DTA114ESTP																				
	MA167TA, 1SR35200TB MA165TA, 1SS133		MA4062LTA, MA4051LTA MA4240MTA, MA4051MTA MA4082MTA, MA4056MTA																				

## WIRING CONNECTION

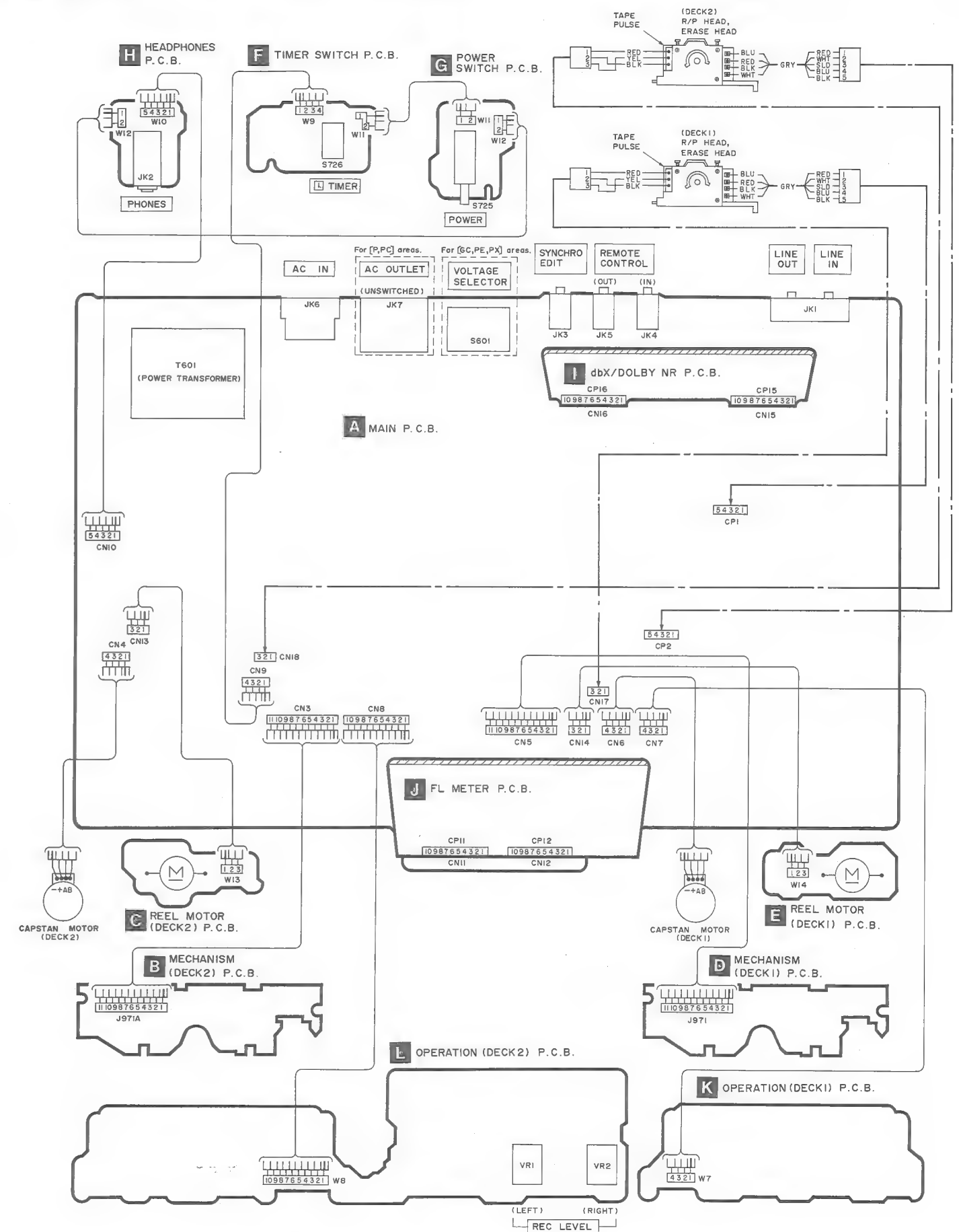




# ■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



# ■ WIRING CONNECTION DIAGRAM



# RESISTORS & CAPACITORS

## Notes : \* Important safety notice:

Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

\* Parenthesis indications in Remarks columns specify the area. (Refer to the first page for area.)

Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		RESISTORS		R135, 136	ERDS2TJ822	C. RESISTOR 1/4W 8.2K	
				R301	ERDS2TJ180T	C. RESISTOR 1/4W 1.0	
				R302, 303	ERDS2TJ183T	C. RESISTOR 1/4W 18K	
R1, 2	ERDS2TJ394T	C. RESISTOR 1/4W 390K		R304, 305	ERDS2TJ100T	C. RESISTOR 1/4W 10	
R3, 4	ERDS2TJ393T	C. RESISTOR 1/4W 39K		R306	ERDS2TJ471T	C. RESISTOR 1/4W 470	
R5, 6	ERDS2TJ183T	C. RESISTOR 1/4W 18K		R307	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K	
R7, 8	ERDS2TJ225	C. RESISTOR 1/4W 2.2M		R311, 312	ERDS2TJ101T	C. RESISTOR 1/4W 100	
R9, 10	ERDS2TJ332T	C. RESISTOR 1/4W 3.3K		R313, 314	ERDS2TJ154T	C. RESISTOR 1/4W 150K	
R11, 12	ERDS2TJ561T	C. RESISTOR 1/4W 560		R315, 316	ERDS2TJ153T	C. RESISTOR 1/4W 15K	
R13, 14	ERDS2TJ332T	C. RESISTOR 1/4W 3.3K		R319	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R15, 16	ERDS2TJ101T	C. RESISTOR 1/4W 100		R321	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R19, 20	ERDS2TJ101T	C. RESISTOR 1/4W 100		R329	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K	
R21, 22	ERDS2TJ473T	C. RESISTOR 1/4W 47K		R351	ERDS2TJ180T	C. RESISTOR 1/4W 1.0	
R23, 24	ERDS2TJ101T	C. RESISTOR 1/4W 100		R352, 353	ERDS2TJ183T	C. RESISTOR 1/4W 18K	
R25, 26	ERDS2TJ225	C. RESISTOR 1/4W 2.2M		R354, 355	ERDS2TJ100T	C. RESISTOR 1/4W 10	
R27, 28	ERDS2TJ820T	C. RESISTOR 1/4W 82		R356	ERDS2TJ471T	C. RESISTOR 1/4W 470	
R29, 30	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R357	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K	
R31, 32	ERDS2TJ273T	C. RESISTOR 1/4W 27K		R361, 362	ERDS2TJ101T	C. RESISTOR 1/4W 100	
R33, 34	ERDS2TJ183T	C. RESISTOR 1/4W 18K		R363, 364	ERDS2TJ154T	C. RESISTOR 1/4W 150K	
R35, 36	ERDS2TJ474T	C. RESISTOR 1/4W 470K		R365, 366	ERDS2TJ153T	C. RESISTOR 1/4W 15K	
R37, 38	ERDS2TJ272T	C. RESISTOR 1/4W 2.7K		R369	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R43, 44	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R371	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R45, 46	ERDS2TJ223T	C. RESISTOR 1/4W 22K		R379	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K	
R47, 48	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K		R401~404	ERDS2TJ101T	C. RESISTOR 1/4W 100	
R49, 50	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R407, 408	ERDS2TJ242	C. RESISTOR 1/4W 2.4K	
R51, 52	ERDS2TJ470T	C. RESISTOR 1/4W 47		R409~412	ERDS2TJ684T	C. RESISTOR 1/4W 680K	
R53, 54	ERDS2TJ242	C. RESISTOR 1/4W 2.4K		R413, 414	ERDS2TJ562T	C. RESISTOR 1/4W 5.6K	
R55, 56	ERDS2TJ272T	C. RESISTOR 1/4W 2.7K		R415, 416	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R57, 58	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R417, 418	ERDS2TJ332T	C. RESISTOR 1/4W 3.3K	
R59, 60	ERDS2TJ562T	C. RESISTOR 1/4W 5.6K		R419, 420	ERDS2TJ333T	C. RESISTOR 1/4W 33K	
R65	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K		R421~424	ERDS2TJ823T	C. RESISTOR 1/4W 82K	
R67	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R425, 426	ERDS2TJ683T	C. RESISTOR 1/4W 68K	
R75, 76	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R427, 428	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K	
R101, 102	ERDS2TJ225	C. RESISTOR 1/4W 2.2M		R429, 430	ERDS2TJ512	C. RESISTOR 1/4W 5.1K	
R103~108	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R431, 432	ERDS2TJ123T	C. RESISTOR 1/4W 12K	
R109, 110	ERDS2TJ562T	C. RESISTOR 1/4W 5.6K		R433, 434	ERDS2TJ362T	C. RESISTOR 1/4W 3.6K	
R111, 112	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R435, 436	ERDS2TJ622	C. RESISTOR 1/4W 6.2K	
R113, 114	ERDS2TJ223T	C. RESISTOR 1/4W 22K		R437, 438	ERDS2TJ243	C. RESISTOR 1/4W 24K	
R115, 116	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K		R439, 440	ERDS2TJ913T	C. RESISTOR 1/4W 91K	
R117, 118	ERDS2TJ470T	C. RESISTOR 1/4W 47		R441, 442	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R121, 122	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R443~446	ERDS2TJ333T	C. RESISTOR 1/4W 33K	
R123, 124	ERDS2TJ242	C. RESISTOR 1/4W 2.4K		R447, 448	ERDS2TJ682	C. RESISTOR 1/4W 6.8K	
R125, 126	ERDS2TJ272T	C. RESISTOR 1/4W 2.7K		R449, 450	ERDS2TJ183T	C. RESISTOR 1/4W 18K	
R127, 128	ERDS2TJ223T	C. RESISTOR 1/4W 22K		R451, 452	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	
R129, 130	ERDS2TJ183T	C. RESISTOR 1/4W 18K		R453~456	ERDS2TJ123	C. RESISTOR 1/4W 12K	
R131, 132	ERDS2TJ473T	C. RESISTOR 1/4W 47K		R457~460	ERDS2TJ112	C. RESISTOR 1/4W 1.1K	
R133, 134	ERDS2TJ562T	C. RESISTOR 1/4W 5.6K		R461, 462	ERDS2TJ225	C. RESISTOR 1/4W 2.2M	



Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
R463, 464	ERDS2TJ122T	C. RESISTOR 1/4W 1.2K		R713	ERDS2TJ821T	C. RESISTOR 1/4W 820	
R465, 466	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K		R714	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R467	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R715	ERDS2TJ122T	C. RESISTOR 1/4W 1.2K	
R468, 469	ERDS2TJ223T	C. RESISTOR 1/4W 22K		R716	ERDS2TJ152T	C. RESISTOR 1/4W 1.5K	
R470	ERDS2TJ822	C. RESISTOR 1/4W 8.2K		R717	ERDS2TJ182T	C. RESISTOR 1/4W 1.8K	
R471, 472	ERDS2TJ104	C. RESISTOR 1/4W 100K		R718	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K	
R473~475	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K		R719	ERDS2TJ332T	C. RESISTOR 1/4W 3.3K	
R551~556	ERDS2TJ473T	C. RESISTOR 1/4W 47K		R720	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R557, 558	ERDS2TJ220	C. RESISTOR 1/4W 22		R721	ERDS2TJ682T	C. RESISTOR 1/4W 6.8K	
R559, 560	ERDS2TJ152T	C. RESISTOR 1/4W 1.5K		R722	ERDS2TJ123T	C. RESISTOR 1/4W 12K	
R561	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R723	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R562	ERDS2TJ471T	C. RESISTOR 1/4W 470		R724	ERDS2TJ683T	C. RESISTOR 1/4W 68K	
R563, 564	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R801	ERDS2TJ223T	C. RESISTOR 1/4W 22K	△
R565	ERDS2TJ105T	C. RESISTOR 1/4W 1M		R802	ERDS2TJ821T	C. RESISTOR 1/4W 820	
R566, 567	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R803	ERG1SJ120E	M. RESISTOR 1W 12	
R571, 572	ERDS2TJ562T	C. RESISTOR 1/4W 5.6K		R804	ERDS2TJ223T	C. RESISTOR 1/4W 22K	△
R601, 602	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	△	R805	ERDS2TJ821T	C. RESISTOR 1/4W 820	
R603	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R806	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R604	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	△	R807	ERDS2TJ822	C. RESISTOR 1/4W 8.2K	
R605	ERDS1FJ5R6	C. RESISTOR 1/2W 5.6	(P, PC, E, E5, EG, GC, PE, PK) △	R808	ERDS2TJ682T	C. RESISTOR 1/4W 6.8K	
R605	ERD2FCVG100T	C. RESISTOR 1/4W 10	(EB, GN) △	R809	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R606	ERDS1FJ3R3	C. RESISTOR 1/2W 3.3	△	R810	ERDS2TJ682T	C. RESISTOR 1/4W 6.8K	
R607, 608	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R811	ERDS2TJ822	C. RESISTOR 1/4W 8.2K	
R611	ERDS1FVJ100T	C. RESISTOR 1/2W 10	(P, PC, E, E5, EG, GC, PE, PK) △	R812	ERDS2TJ223T	C. RESISTOR 1/4W 22K	△
R611	ERD2FCVG100T	C. RESISTOR 1/4W 10	(EB, GN) △	R813	ERDS2TJ821T	C. RESISTOR 1/4W 820	
R612	ERDS1FJ270	C. RESISTOR 1/2W 27	(P, PC, E, E5, EG, GC, PE, PK) △	R814	ERG1SJ120E	M. RESISTOR 1W 12	
R612	ERD2FCG270	C. RESISTOR 1/4W 27	(EB, GN) △	R815	ERDS2TJ223T	C. RESISTOR 1/4W 22K	△
R613	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R816	ERDS2TJ821T	C. RESISTOR 1/4W 820	
R614	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K	△	R817, 818	ERDS1FJ8R2	C. RESISTOR 1/2W 8.2	△
R615, 616	ERDS2TJ120T	C. RESISTOR 1/4W 12	(P, PC, E, E5, EG, GC, PE, PK) △	R819, 820	ERDS2TJ103T	C. RESISTOR 1/4W 10K	
R615, 616	ERD2FCG120	C. RESISTOR 1/4W 12	(EB, GN) △	R821, 822	ERDS2TJ391	C. RESISTOR 1/4W 390	
R617, 618	ERQ16NKR15E	F. RESISTOR 1/6W 0.15	(EB, GN) △	R823, 824	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R619~621	ERDS2TJ560	C. RESISTOR 1/4W 56	(EB, GN)	R825, 826	ERDS2TJ103T	C. RESISTOR 1/4W 10K	
R622	ERQ16NKR15E	F. RESISTOR 1/6W 0.15	(EB, GN)	R827	ERDS2TJ563T	C. RESISTOR 1/4W 56K	
R623	ERDS2TJ560	C. RESISTOR 1/4W 56	(EB, GN)	R828	ERDS2TJ272T	C. RESISTOR 1/4W 2.7K	
R632	ERD2FCVG150T	C. RESISTOR 1/4W 15	(EB, GN)	R829	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K	
R701	ERDS2TJ821T	C. RESISTOR 1/4W 820		R830	ERDS2TJ103T	C. RESISTOR 1/4W 10K	
R702	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R831	ERDS2TJ152T	C. RESISTOR 1/4W 1.5K	
R703	ERDS2TJ122T	C. RESISTOR 1/4W 1.2K		R832	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	
R704	ERDS2TJ152T	C. RESISTOR 1/4W 1.5K		R833, 834	ERDS2TJ473T	C. RESISTOR 1/4W 47K	
R705	ERDS2TJ182T	C. RESISTOR 1/4W 1.8K		R835	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R706	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K		R836	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R707	ERDS2TJ332T	C. RESISTOR 1/4W 3.3K		R837	ERDS2TJ473T	C. RESISTOR 1/4W 47K	
R708	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K		R838	ERDS2TJ272T	C. RESISTOR 1/4W 2.7K	
R709	ERDS2TJ682	C. RESISTOR 1/4W 6.8K		R839	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R710	ERDS2TJ123	C. RESISTOR 1/4W 12K		R840	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R711	ERDS2TJ223T	C. RESISTOR 1/4W 22K		R841	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R712	ERDS2TJ683T	C. RESISTOR 1/4W 68K		R842	ERDS2TJ123	C. RESISTOR 1/4W 12K	
				R843	ERDS2TJ393T	C. RESISTOR 1/4W 39K	
				R844	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
				R845	ERDS2TJ823	C. RESISTOR 1/4W 82K	
				R846	ERDS2TJ101	C. RESISTOR 1/4W 100	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
R847	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R965	ERDS2TJ103T	C. RESISTOR 1/4W 10K	
R848, 849	ERG1SJ120E	M. RESISTOR 1W 12		R966	ERDS2TJ223T	C. RESISTOR 1/4W 22K	△
R850, 851	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R967	ERDS2TJ821T	C. RESISTOR 1/4W 820	
R852, 853	ERDS1FJ470	C. RESISTOR 1/2W 47	△	R971, 971A	ERDS2TJ271T	C. RESISTOR 1/4W 270	
R854	ERDS2TJ103T	C. RESISTOR 1/4W 10K		R972, 972A	ERDS2TJ183T	C. RESISTOR 1/4W 18K	
R855, 856	ERDS2TJ473T	C. RESISTOR 1/4W 47K					
R857, 858	ERDS2TJ473T	C. RESISTOR 1/4W 47K	(EB, GN)			CAPACITORS	
R901	ERDS2TJ473T	C. RESISTOR 1/4W 47K					
R903	ERDS2TJ393T	C. RESISTOR 1/4W 39K		C1~4	ECEA1HK010B	E. CAPACITOR 50V 1U	
R904, 905	ERDS2TJ222T	C. RESISTOR 1/4W 2.2K		C5, 6	ECEA1CK220B	E. CAPACITOR 16V 22U	
R906	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C7~10	RCBS1H331KBY	C. CAPACITOR 50V 330P	
R907	ERDS2TJ563	C. RESISTOR 1/4W 56K		C11, 12	ECBT1H102KB5	C. CAPACITOR 50V 1000P	
R908~910	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C13, 14	ECEA0JU101B	E. CAPACITOR 6.3V 100U	
R911	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K		C15, 16	ECQB1H682JZ3	P. CAPACITOR 50V 6800P	
R912	ERDS2TJ272T	C. RESISTOR 1/4W 2.7K		C17~20	ECEA1EK4R7B	E. CAPACITOR 25V 4.7U	
R913	ERDS2TJ152T	C. RESISTOR 1/4W 1.5K		C21	ECEA0JU101B	E. CAPACITOR 6.3V 100U	
R914	ERDS2TJ182	C. RESISTOR 1/4W 1.8K		C25, 26	ECEA1HK010B	E. CAPACITOR 50V 1U	
R915	ERDS2TJ473T	C. RESISTOR 1/4W 47K		C27, 28	ECBT1H561KB5	C. CAPACITOR 50V 560P	
R916	ERDS2TJ272T	C. RESISTOR 1/4W 2.7K		C29, 30	ECKD2H101KB	C. CAPACITOR 500V 100P	
R917, 918	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C31, 32	ECCT1H181K	C. CAPACITOR 50V 180P	
R919	ERDS2TJ471T	C. RESISTOR 1/4W 470		C33, 34	ECEA1HKR47	E. CAPACITOR 50V 0.47U	
R920, 921	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C35, 36	ECQB1H472JZ3	P. CAPACITOR 50V 4700P	
R923	ERDS2TJ102T	C. RESISTOR 1/4W 1K		C37, 38	ECQB1H223JZ3	P. CAPACITOR 50V 0.022U	
R924	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C39, 40	ECQB1H103JZ	P. CAPACITOR 50V 0.01U	
R925	ERDS2TJ273T	C. RESISTOR 1/4W 27K		C41, 42	ECQB1H223JZ3	P. CAPACITOR 50V 0.022U	
R926	ERDS2TJ102T	C. RESISTOR 1/4W 1K		C45, 46	ECBT1E103ZF5	C. CAPACITOR 25V 0.01U	
R927	ERDS2TJ223T	C. RESISTOR 1/4W 22K		C49, 50	ECEA1CK100B	E. CAPACITOR 16V 10U	
R928	ERDS2TJ562T	C. RESISTOR 1/4W 5.6K		C53, 54	ECQB1H273JZ3	P. CAPACITOR 50V 0.027U	
R929	ERDS2TJ272T	C. RESISTOR 1/4W 2.7K		C55	ECBT1E103ZF5	C. CAPACITOR 25V 0.01U	
R932	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K		C57, 58	ECEA1AU470B	E. CAPACITOR 10V 47U	
R933	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K		C59~62	RCBS1H4R7KCY	C. CAPACITOR 50V 4.7U	
R934	ERDS2TJ105T	C. RESISTOR 1/4W 1M		C101, 102	ECBT1H102KB5	C. CAPACITOR 50V 1000P	
R935	ERDS2TJ182	C. RESISTOR 1/4W 1.8K		C103, 104	ECKD2H101KB	C. CAPACITOR 500V 100P	
R943	ERDS2TJ223T	C. RESISTOR 1/4W 22K		C105, 106	ECBT1H561KB5	C. CAPACITOR 50V 560P	
R945	ERDS2TJ223T	C. RESISTOR 1/4W 22K		C107, 108	ECEA1HKR47	E. CAPACITOR 50V 0.47U	
R946, 947	ERDS2TJ102T	C. RESISTOR 1/4W 1K		C109, 110	RCBS1H181KB	C. CAPACITOR 50V 180P	
R948	ERDS2TJ184	C. RESISTOR 1/4W 180K		C111, 112	ECQB1H273JZ3	P. CAPACITOR 50V 0.027U	
R949	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C113, 114	ECQB1H103JZ	P. CAPACITOR 50V 0.01U	
R950	ERDS2TJ332T	C. RESISTOR 1/4W 3.3K		C115, 116	ECQB1H273JZ3	P. CAPACITOR 50V 0.027U	
R951	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C119, 120	ECEA1HK010B	E. CAPACITOR 50V 1U	
R952	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K		C121	ECBT1E103ZF5	C. CAPACITOR 25V 0.01U	
R953	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C301	ECQP1153JZ	P. CAPACITOR 50V 0.015U	
R954	ERDS2TJ223T	C. RESISTOR 1/4W 22K	△	C302	ECEA1EK4R7B	E. CAPACITOR 25V 4.7U	
R955	ERDS2TJ821T	C. RESISTOR 1/4W 820		C303	ECKD1H392K	C. CAPACITOR 50V 3900P	
R956	ERDS2TJ223T	C. RESISTOR 1/4W 22K	△	C304, 305	ECFRIE222KAY	S. CAPACITOR 25V 2200P	
R957	ERDS2TJ821T	C. RESISTOR 1/4W 820		C306	ECFRIE682KAY	S. CAPACITOR 25V 6800P	
R958	ERDS2TJ223T	C. RESISTOR 1/4W 22K	△	C309	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
R959	ERDS2TJ821T	C. RESISTOR 1/4W 820		C310	ECKD1H472KB	C. CAPACITOR 50V 4700P	
R960	ERDS2TJ153T	C. RESISTOR 1/4W 15K		C311	ECEA1AU471	E. CAPACITOR 10V 470U	
R962	ERDS2TJ103T	C. RESISTOR 1/4W 10K		C313, 314	ECQB1H223JZ3	P. CAPACITOR 50V 0.022U	
R963	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K		C315, 316	ECBT1H821KB5	C. CAPACITOR 50V 820P	
R964	ERDS2TJ184	C. RESISTOR 1/4W 180K		C317, 318	RCBS1H121KBY	C. CAPACITOR 50V 120P	



Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
C319, 320	ECQV1H104JZ3	P. CAPACITOR 50V 0.1U		C469 472	ECKD1H182KB	C. CAPACITOR 50V 1800P	
C321, 322	ECQB1H223JZ3	P. CAPACITOR 50V 0.022U		C473, 474	ECEA1HK010B	E. CAPACITOR 50V 1U	
C323, 324	ECQB1H103JZ3	P. CAPACITOR 50V 0.01U		C505, 506	ECBT1E103ZF5	C. CAPACITOR 25V 0.01U	
C325, 326	ECKD1H122KB	C. CAPACITOR 50V 1200P		C551, 552	ECQV1H104JZ3	P. CAPACITOR 50V 0.1U	
C328	RCBS1H100JCY	C. CAPACITOR 50V 10P		C553, 554	ECEA0JK101	E. CAPACITOR 6.3V 100U	
C331	ECBT1E103ZF5	C. CAPACITOR 25V 0.01U		C555	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
C332	ECEA1CK100B	E. CAPACITOR 16V 10U		C556	ECEA1CK100B	E. CAPACITOR 16V 10U	
C351	ECQP1153JZ	P. CAPACITOR 50V 0.015U		C557	ECEA1EK4R7B	E. CAPACITOR 25V 4.7U	
C352	ECEA1EK4R7B	E. CAPACITOR 25V 4.7U		C558	ECEA1HK010B	E. CAPACITOR 50V 1U	
C353	ECKD1H392K	C. CAPACITOR 50V 3900P		C559~562	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
C354, 355	ECFR1E222KAY	S. CAPACITOR 25V 2200P		C565	ECBT1E103ZF5	C. CAPACITOR 25V 0.01U	
C356	ECFR1E682KAY	S. CAPACITOR 25V 6800P		C601	ECKT2H682PEL	C. CAPACITOR 500V 6800P	△
C359	ECKT1H103ZF	C. CAPACITOR 50V 0.01U		C602, 603	ECEA1EU102B	E. CAPACITOR 25V 1000U	△
C360	ECKD1H472KB	C. CAPACITOR 50V 4700P		C604, 605	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
C361	ECEA1AU471	E. CAPACITOR 10V 470U		C606, 607	ECEA1AU471	E. CAPACITOR 10V 470U	
C363, 364	ECQB1H223JZ3	P. CAPACITOR 50V 0.022U		C608, 609	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
C365, 366	ECBT1H821KB5	C. CAPACITOR 50V 820P		C610, 611	ECEA1AU222	E. CAPACITOR 10V 2200U	
C367, 368	RCBS1H121KBY	C. CAPACITOR 50V 120P		C612	ECEA1EU472E	E. CAPACITOR 25V 4700U	△
C369, 370	ECQV1H104JZ3	P. CAPACITOR 50V 0.1U		C613	ECEA1HJ470	E. CAPACITOR 50V 47U	
C371, 372	ECQB1H223JZ3	P. CAPACITOR 50V 0.022U		C615	ECBT1E103ZF5	C. CAPACITOR 25V 0.01U	(EB, GN)
C373, 374	ECQB1H103JZ3	P. CAPACITOR 50V 0.01U		C801	ECEA1HK2R2	E. CAPACITOR 50V 2.2U	
C375, 376	ECKD1H122KB	C. CAPACITOR 50V 1200P		C802	ECDD1H470K	C. CAPACITOR 50V 47P	
C378	RCBS1H100JCY	C. CAPACITOR 50V 10P		C803	ECEA1CK100B	E. CAPACITOR 16V 10U	
C381	ECBT1E103ZF5	C. CAPACITOR 25V 0.01U		C804	ECQB1H822JZ	P. CAPACITOR 50V 8200P	
C382	ECEA1CK100B	E. CAPACITOR 16V 10U		C805, 806	ECEA1CN100S	E. CAPACITOR 16V 10U	
C401, 402	RCBS1H820KBY	C. CAPACITOR 50V 82P		C807, 808	ECEA1CK100B	E. CAPACITOR 16V 10U	
C403, 404	ECEA1EK4R7B	E. CAPACITOR 25V 4.7U		C901	ECEA0JU222B	E. CAPACITOR 6.3V 2200U	
C405	ECKD1H122KB	C. CAPACITOR 50V 1200P		C903	ECEA1HK010B	E. CAPACITOR 50V 1U	
C406, 407	ECKD1H472KB	C. CAPACITOR 50V 4700P		C904	ECEA1EK4R7B	E. CAPACITOR 25V 4.7U	
C408	ECKD1H122KB	C. CAPACITOR 50V 1200P		C907	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
C409, 410	ECQB1H472JZ3	P. CAPACITOR 50V 4700P					
C411, 412	ECEA1CK100B	E. CAPACITOR 16V 10U					
C413, 414	ECQV1H473JZ	P. CAPACITOR 50V 0.047U					
C415, 416	ECQV1H224JZ3	P. CAPACITOR 50V 0.22U					
C417~420	ECEA1HKB68	E. CAPACITOR 50V 0.68U					
C421, 422	ECQV1H224JZ3	P. CAPACITOR 50V 0.22U					
C423, 424	ECQV1H473JZ	P. CAPACITOR 50V 0.047U					
C425, 426	ECEA1CK100B	E. CAPACITOR 16V 10U					
C427, 428	ECQB1H472JZ3	P. CAPACITOR 50V 4700P					
C429, 430	ECQB1H103JZ3	P. CAPACITOR 50V 0.01U					
C441, 442	ECEA1AK220B	E. CAPACITOR 10V 22U					
C443, 444	ECQB1H153JZ	P. CAPACITOR 50V 0.015U					
C445, 446	RCBS1H331KBY	C. CAPACITOR 50V 330P					
C447, 448	ECEA1AN220S	E. CAPACITOR 10V 22U					
C449~452	ECQV1H104JZ3	P. CAPACITOR 50V 0.1U					
C453~456	ECQB1H332JZ3	P. CAPACITOR 50V 3300P					
C457, 458	RCBS1H331KBY	C. CAPACITOR 50V 330P					
C459, 460	ECQV1H184JZ3	P. CAPACITOR 50V 0.18U					
C461, 462	ECQM1H183JZ	P. CAPACITOR 50V 0.018U					
C463, 464	ECEA1AK220B	E. CAPACITOR 10V 22U					
C465, 466	ECEA1EK3R3	E. CAPACITOR 25V 3.3U					
C469~472	ECEA1HKLRSB	E. CAPACITOR 50V 1.5U					

■ REPLACEMENT PARTS LIST

Notes : \* Important safety notice:

Components identified by △ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

\* Parenthesis indications in Remarks columns specify the area. (Refer to the first page for area.)

Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUITS		Q803	2SB1030RSTTA	TRANSISTOR	△
				Q804	DTC114ESTP	TRANSISTOR	
				Q805	2SC3311A-Q	TRANSISTOR	
IC1	AN7384	IC, ELECTRIC VOLUME		Q806, 807	DTC114ESTP	TRANSISTOR	
IC2	AN7351K	IC, PLAYBACK/REC AMP		Q808	2SC3311A-Q	TRANSISTOR	
IC3	M5218L	IC, HEADPHONES AMP	△	Q809	2SB1030RSTTA	TRANSISTOR	△
IC101	M5218L	IC, RECORD AMP		Q810	DTC114ESTP	TRANSISTOR	
IC301	UPC1297CA	IC, DOLBY HX PRO		Q811	2SB1030RSTTA	TRANSISTOR	△
IC351	UPC1297CA	IC, DOLBY HX PRO		Q812	DTC114ESTP	TRANSISTOR	
IC401, 402	TEA0665	IC, DOLBY B/C NR		Q813, 814	DTA114ESTP	TRANSISTOR	
IC403	AN6294NK	IC, dbx NR		Q815	2SB1030RSTTA	TRANSISTOR	
IC404, 405	MN6634	IC, SELECTOR		Q816	2SC3311A-Q	TRANSISTOR	
IC551	HD404302SA02	IC, MICROCOMPUTER, FL METER		Q817, 818	2SC3311A-Q	TRANSISTOR	(EB, GN)
IC552	M5218L	IC, BUFFER AMP		Q901	2SC3311A-Q	TRANSISTOR	
IC801	LB1648	IC, MOTOR DRIVE		Q902, 903	DTA114ESTP	TRANSISTOR	
IC802	M5218L	IC, MUSIC SELECTOR		Q904	2SB1030RSTTA	TRANSISTOR	
IC901	M50746-147SP	IC, MICROCOMPUTER, MECHANICAL		Q905	2SC3311A-Q	TRANSISTOR	
IC971, 971A	GP2506BC	IC, PHOTO COUPLER		Q906	DTC114ESTP	TRANSISTOR	
		TRANSISTORS		Q907	2SA1309AQSTA	TRANSISTOR	
				Q908, 909	DTA114ESTP	TRANSISTOR	
				Q910	DTC114ESTP	TRANSISTOR	
Q1~4	2SJ164PQRTA	TRANSISTOR		Q911	2SA1309AQSTA	TRANSISTOR	
Q5~8	2SA1309AQSTA	TRANSISTOR		Q912	2SB621ARSTA	TRANSISTOR	△
Q9~14	2SC3311A-Q	TRANSISTOR		Q913	DTC114ESTP	TRANSISTOR	
Q101, 102	2SJ164PQRTA	TRANSISTOR		Q914	2SB1030RSTTA	TRANSISTOR	△
Q103, 104	2SC3311A-Q	TRANSISTOR		Q915	DTC114ESTP	TRANSISTOR	
Q105, 106	2SD1450RSTA	TRANSISTOR		Q916	2SB1030RSTTA	TRANSISTOR	△
Q107, 108	2SA1309AQSTA	TRANSISTOR		Q917	DTC114ESTP	TRANSISTOR	
Q109~112	2SC3311A-Q	TRANSISTOR		Q918	2SA1309AQSTA	TRANSISTOR	
Q113, 114	2SK381BCD	TRANSISTOR		Q919	DTC114ESTP	TRANSISTOR	
Q301, 302	2SC3311A-Q	TRANSISTOR		Q920	2SB621ARSTA	TRANSISTOR	△
Q303	2SB621ARSTA	TRANSISTOR		Q921, 922	DTC114ESTP	TRANSISTOR	
Q304	2SD592A	TRANSISTOR					
Q351, 352	2SC3311A-Q	TRANSISTOR				DIODES	
Q353	2SB621ARSTA	TRANSISTOR					
Q354	2SD592A	TRANSISTOR		D1, 2	MA167TA	DIODE	
Q401~404	2SC3311A-Q	TRANSISTOR		D101, 102	MA167TA	DIODE	
Q551	2SA1309AQSTA	TRANSISTOR		D103, 104	MA165TA	DIODE	
Q601	2SA1309AQSTA	TRANSISTOR	△	D311, 312	MA165TA	DIODE	
Q603	2SC3311A-Q	TRANSISTOR	△	D313	MA4082MTA	DIODE	
Q604	2SD2037EFTA	TRANSISTOR		D351, 352	MA165TA	DIODE	
Q605	2SB1357DEFTA	TRANSISTOR		D363	MA4082MTA	DIODE	
Q606	2SD2037EFTA	TRANSISTOR		D401	MA165TA	DIODE	
Q607	2SB621ARSTA	TRANSISTOR		D551~554	MA165TA	DIODE	
Q608	2SB621ARSTA	TRANSISTOR	(EB, GN)	D555	MA4056MTA	DIODE	
Q801	2SB1030RSTTA	TRANSISTOR	△	D601~606	1SR35200TB	DIODE	△
Q802	DTC114ESTP	TRANSISTOR		D607, 608	MA4082MTA	DIODE	

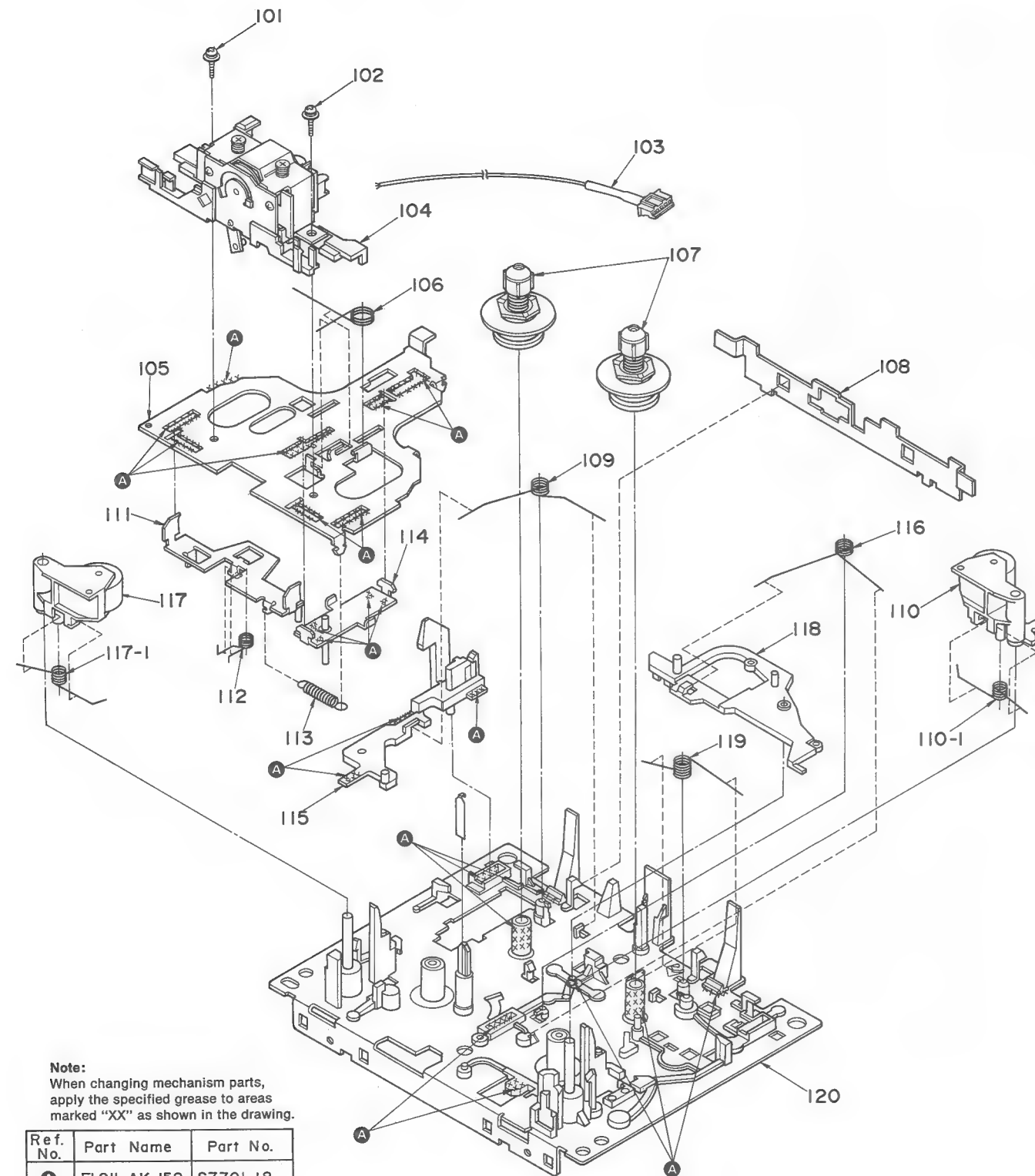
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
D609	MA4240H	DIODE		L403, 404	SLM1B8-K	COIL	
D610	MA4062LTA	DIODE		L501, 502	RLQZP101KT-Y	COIL	
D611	1SR35200TB	DIODE	△	L503, 504	RLQZP1R0KT-Y	COIL	
D612	MA165TA	DIODE					
D801	MA4051L	DIODE				TRANSFORMERS	
D802	MA4075MTA	DIODE					
D803	MA4051L	DIODE		T601	RTP1V4B006-C	POWER TRANSFORMER	(EB, GN) △
D804	MA4075MTA	DIODE		T601	RTP1V4E005-C	POWER TRANSFORMER	(E, E5, EG) △
D805, 806	MA165TA	DIODE		T601	RTP1V4E006-C	POWER TRANSFORMER	(GC, PE, PX) △
D808~811	MA165TA	DIODE		T601	RTP1V4P001-C	POWER TRANSFORMER	(P, PC) △
D813~817	MA165TA	DIODE					
D901~907	MA165TA	DIODE				OSCILLATORS	
D908	1SR35200TB	DIODE					
D909, 910	MA165TA	DIODE		X551	EF0GC4004T4	CERAMIC FILTER	
D911, 912	MA165TA	DIODE	△	X901	EF0GC4004T4	CERAMIC FILTER	
D913	MA165TA	DIODE					
D914	MA4051MTA	DIODE				DISPLAY TUBE	
D971, 971A	1SS133	DIODE					
D972, 972A	1SS133	DIODE		FL551	RSL0011F	DISPLAY TUBE (FL METER)	
		I. C. PROTECTOR					
						SWITCHES	
ICP1	SRUN10T	IC PROTECTOR	(EB, GN)	S601	SSR187-1	SW, VOLTAGE SELECTOR	(GC, PE, PX) △
				S701	EVQB005R	SW, STOP (DECK 1)	
		VARIABLE RESISTORS		S702	EVQB005R	SW, F. F. (DECK 1)	
				S703	EVQB005R	SW, REW. (DECK 1)	
VR1, 2	EVJ02FF01B15	V. R. REC. LEVEL CONTROL		S704	EVQB005R	SW, F. PLAYBACK (DECK 1)	
VR3~6	EVNDXAA00B24	V. R. PLAYBACK GAIN ADJ.		S705	EVQB005R	SW, REVERSE MODE	
VR7, 8	EVNDXAA00B14	V. R. OVERALL GAIN ADJ.		S706	EVQB005R	SW, REVERSE MODE	
VR101, 102	EVNDXAA00B14	V. R. OVERALL GAIN ADJ.		S707	EVQB005R	SW, REVERSE MODE	
VR301	EVNDXAA00B14	V. R. ERASE CURRENT ADJ.		S708	EVQB005R	SW, AUTO REC MUTE (DECK 2)	
VR302, 303	EVNDXAA00B14	V. R. OVERALL FREQ ADJ.		S709	EVQB005R	SW, R. PLAYBACK (DECK 1)	
VR351	EVNDXAA00B14	V. R. ERASE CURRENT ADJ.		S710	EVQB005R	SW, METER RANGE	
VR352, 353	EVNDXAA00B14	V. R. OVERALL FREQ ADJ.		S711	EVQB005R	SW, STOP (DECK 2)	
VR801	EVNDXAA00B53	V. R. dbx TIMING ADJ.		S712	EVQB005R	SW, F. F. (DECK 2)	
VR901~903	EVNDXAA00B53	V. R. TAPE SPEED ADJ.		S713	EVQB005R	SW, REW. (DECK 2)	
				S714	EVQB005R	SW, F. PLAYBACK (DECK 2)	
		COMPONENT COMBINATIONS		S715	EVQB005R	SW, R. PLAYBACK (DECK 2)	
				S716	EVQB005R	SW, REC. (DECK 2)	
Z801~803	EXBF7E562JVJ	COMPONENT COMBINATION		S717	EVQB005R	SW, PAUSE (DECK 2)	
				S718	EVQB005R	SW, SYNCHRO-START	
		COILS		S719	EVQB005R	SW, X2 SPEED	
				S720	EVQB005R	SW, X1 SPEED	
L1, 2	SLQX303-1KT	COIL		S721	EVQB005R	SW, DOLBY C NR	
L3, 4	SLQX272-1YT	COIL		S722	EVQB005R	SW, DOLBY B NR	
L101, 102	SLQX303-1KT	COIL		S723	EVQB005R	SW, COUNTER RESET 1	
L103, 104	SLQX272-1YT	COIL		S724	EVQB005R	SW, COUNTER RESET 2	
L301	SL09B4-K	COIL		S725	SSH1230	SW, POWER	△
L302, 303	SL09B1-K	COIL		S726	SSS180-1	SW, TIMER	
L351	SL09B4-K	COIL		S728	EVQB005R	SW, REC. (DECK1)	
L352, 353	SL09B1-K	COIL		S729	EVQB005R	SW, PAUSE (DECK 1)	
L401, 402	QLM9Z10K	COIL		S730	EVQB005R	SW, AUTO REC MUTE (DECK 1)	



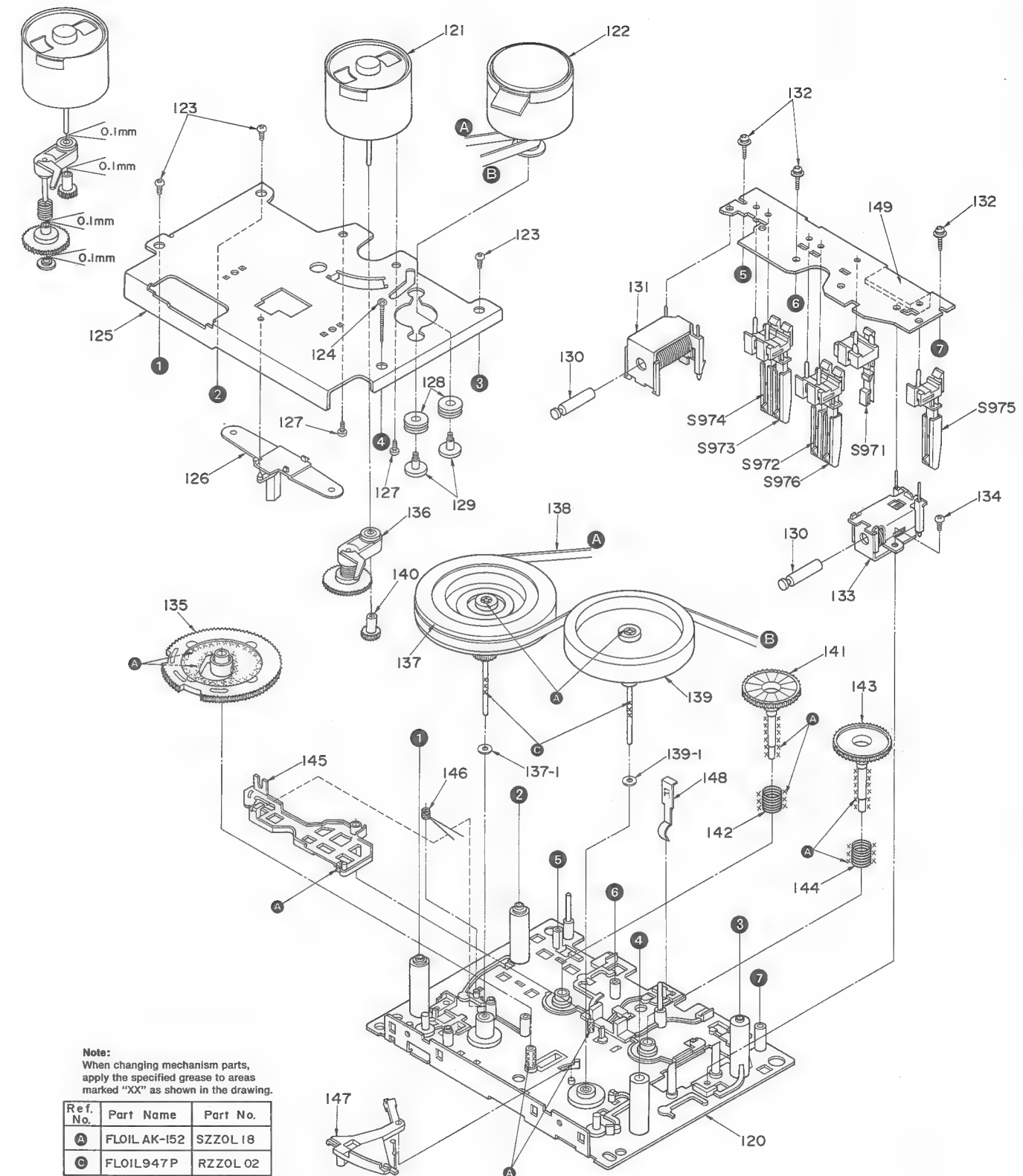
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# MECHANICAL PARTS LOCATION

(DECK 1: Top View)



(DECK 1: Bottom View)





# REPLACEMENT PARTS LIST

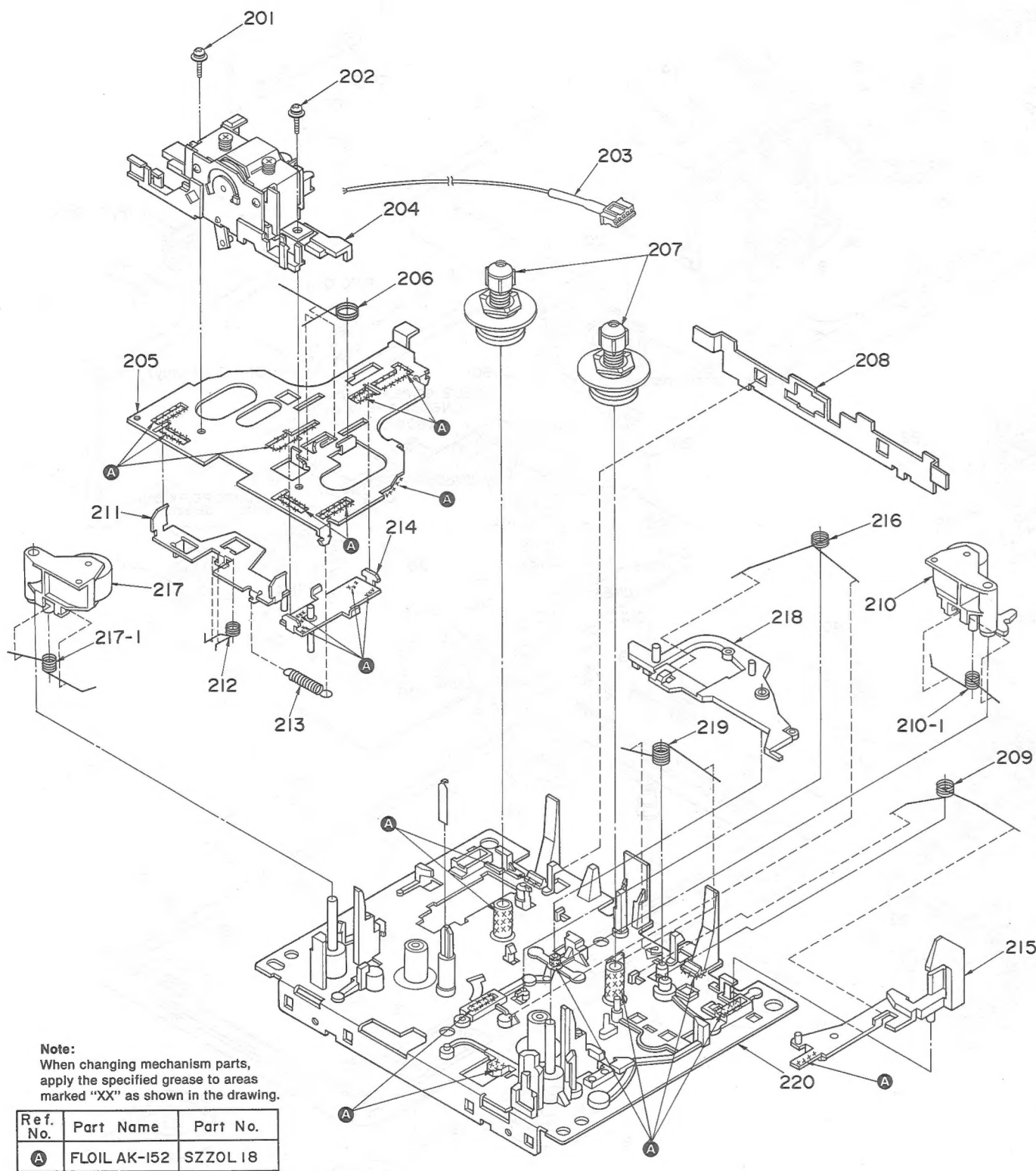
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST		145	RML0037	LEVER	
				146	RUW147ZA	SPRING	
				147	RML0038	LEVER	
DECK 1				148	RUS609Z	TAPE PRESSURE SPRING	
101	XTW2+8L	SCREW		149	RJS11T7ZA	CONNECTOR (11P), J971	
102	XTW2+6L	SCREW					
103	REX0059	LEAD WIRE BLOCK					
104	RXQ0008	HEAD BLOCK (REC./PLAYBACK)					
105	RMA0047	HEAD BASE					
106	RUW139ZA	SPRING					
107	RXR0001	REEL TABLE					
108	RUB502Z	LEVER					
109	RME0018-1	SPRING					
110	RXP0005	PINCH ARM (R)					
110-1	RUW141Z	SPRING					
111	RXQ0077	HEAD BASE					
112	RUW143Z	SPRING					
113	RUD105ZA	SPRING					
114	RXQ0078	MAIN ROD					
115	RMD0012-1	EJECT ROD (L)					
116	RME0020	SPRING					
117	RXP0004	PINCH ARM (F)					
117-1	RUW140Z	SPRING					
118	RXL0007	BRAKE LEVER					
119	RUW142ZA	SPRING					
120	RXK0060	CHASSIS					
121	MMN-6F4RA88	REEL MOTOR					
122	RFM133ZA	DC MOTOR					
123	XTN26+7J	SCREW					
124	XTN26+26F	SCREW					
125	RMA0048	FLYWHEEL PLATE					
126	RMD5014Z	ANGLE					
127	XSN26+3	SCREW					
128	RHG3032Z	RUBBER CUSHION					
129	QH1303	SCREW					
130	RUB428Z	MOVING IRON CORE					
131	RSJ0003	SOLENOID					
132	XTW2+8S	SCREW					
133	RXQ0011	BRAKE SOLENOID					
134	XTN26+4F	SCREW					
135	RDG0030	MAIN GEAR					
136	RXG0009	GEAR					
137	RXF0007	FLYWHEEL (F)					
137-1	RNW139ZA	WASHER					
138	RDV97ZA	CAPSTAN BELT					
139	1DW0054ZB	FLYWHEEL (R)					
139-1	RNW138Z	WASHER					
140	RDG0034	REEL MOTOR GEAR					
141	RXG0003	REEL TABLE GEAR					
142	RUQ112ZA	SPRING					
143	RDG0033	REEL TABLE GEAR					
144	RUQ111ZA	SPRING					

## REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST		245	RML0037	LEVER	
				246	RUW147ZA	SPRING	
				247	RML0038	LEVER	
DECK 2				248	RJS609Z	TAPE PRESSURE SPRING	
201	XTW2+8L	SCREW		249	RJS11T7ZA	CONNECTOR (11P), J971A	
202	XTW2+6L	SCREW					
203	REX0059	LEAD WIRE BLOCK					
204	RXQ0008	HEAD BLOCK (REC. /PLAYBACK)					
205	RMA0047	HEAD BASE					
206	RUW139ZA	SPRING					
207	RXR0001	REEL TABLE					
208	RUB502Z	LEVER					
209	RME0019-1	SPRING					
210	RXP0005	PINCH ARM (R)					
210-1	RUW141Z	SPRING					
211	RXQ0077	HEAD BASE					
212	RUW143Z	SPRING					
213	RUD105ZA	SPRING					
214	RXQ0078	MAIN ROD					
215	RMM0013-1	EJECT ROD (R)					
216	RME0020	SPRING					
217	RXP0004	PINCH ARM (F)					
217-1	RUW140Z	SPRING					
218	RXL0007	BRAKE LEVER					
219	RUW142ZA	SPRING					
220	RXK0060	CHASSIS					
221	MMN-6F4RA88	REEL MOTOR					
222	RFM133ZA	DC MOTOR					
223	XTN26+7J	SCREW					
224	XTN26+26F	SCREW					
225	RMA0048	FLYWHEEL PLATE					
226	RMD5014Z	ANGLE					
227	XSN26+3	SCREW					
228	RHG3032Z	RUBBER CUSHION					
229	QH1303	SCREW					
230	RUB428Z	MOVING IRON CORE					
231	RSJ0003	SOLENOID					
232	XTW2+8S	SCREW					
233	RXQ0011	BRAKE SOLENOID					
234	XTN26+4F	SCREW					
235	RDG0030	MAIN GEAR					
236	RXG0009	GEAR					
237	RXF0007	FLYWHEEL (F)					
237-1	RNW139ZA	WASHER					
238	RDV97ZA	CAPSTAN BELT					
239	1DW0054ZB	FLYWHEEL (R)					
239-1	RNW138Z	WASHER					
240	RDG0034	REEL MOTOR GEAR					
241	RXG0003	REEL TABLE GEAR					
242	RUQ112ZA	SPRING					
243	RDG0033	REEL TABLE GEAR					
244	RUQ111ZA	SPRING					



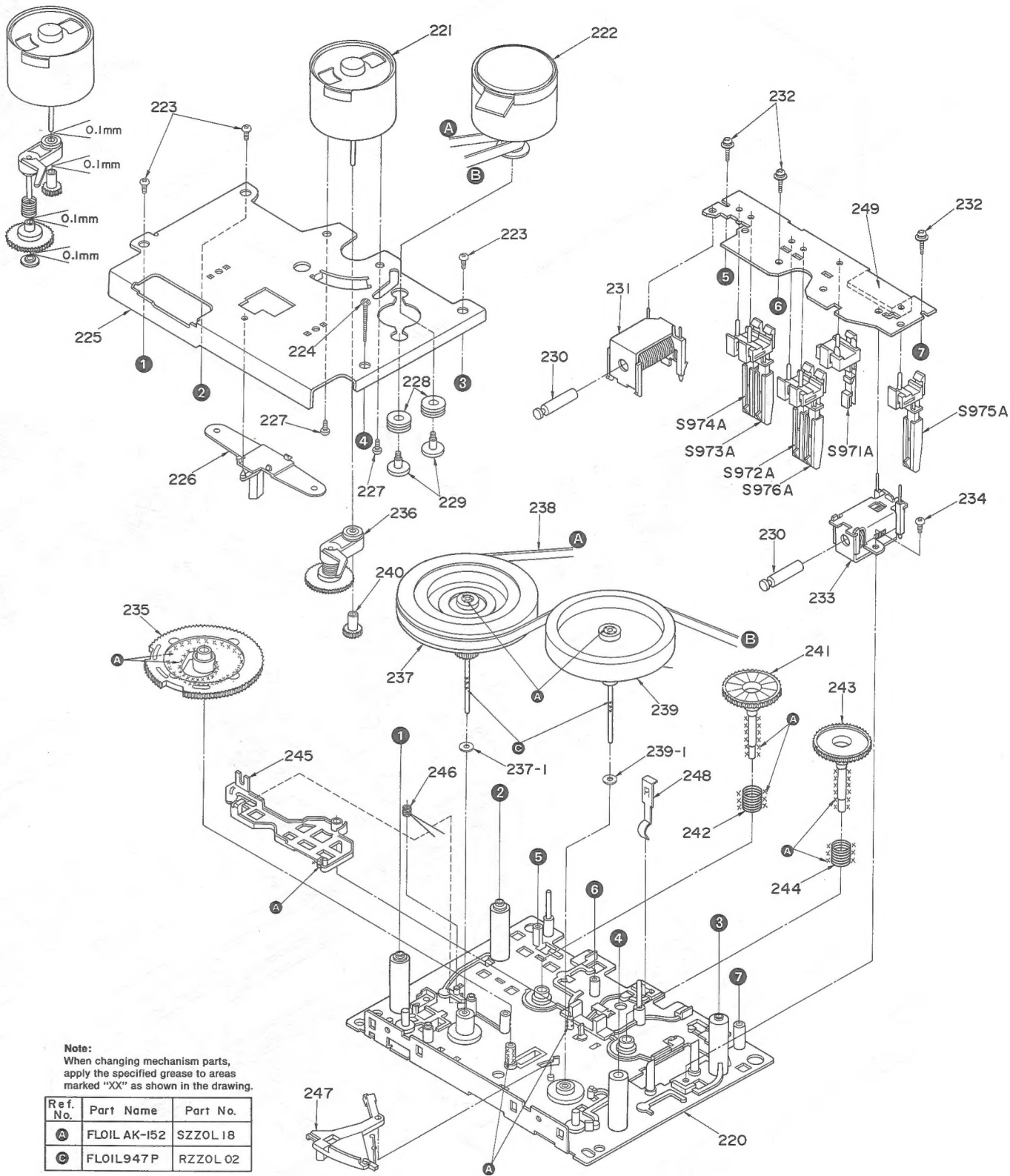
MECHANICAL PARTS LOCATION  
(DECK 2: Top View)



Note:  
When changing mechanism parts,  
apply the specified grease to areas  
marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
A	FLOIL AK-I52	SZZOL 18

(DECK 2: Bottom View)

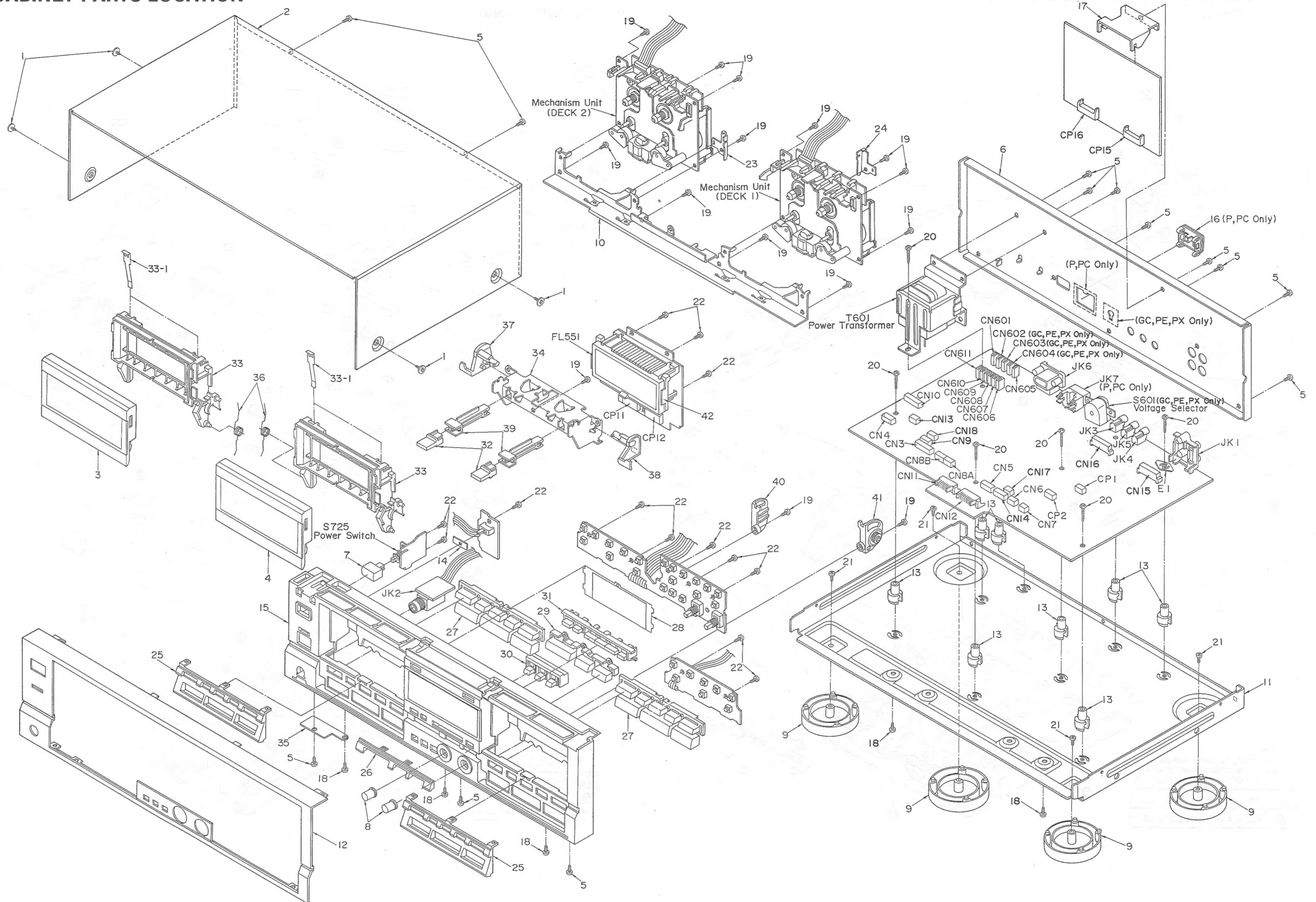


Note:  
When changing mechanism parts,  
apply the specified grease to areas  
marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
A	FLOIL AK-I52	SZZOL 18
C	FLOIL947P	RZZOL 02



# CABINET PARTS LOCATION





# REPLACEMENT PARTS LIST

## Notes : \* Important safety notice:

Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

\* Parenthesis indications in Remarks columns specify the area. (Refer to the first page for area.)

Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		37	RML0041	EJECT LEVER (L)	
				38	RML0042	EJECT LEVER (R)	
				39	RMM0014	EJECT ROD	
1	SNE2129-1	SCREW		40	RMR0153	DAMPER GEAR (L) ASS'Y	
2	RKM0016-K	CABINET		41	RMR0154	DAMPER GEAR (R) ASS'Y	
3	RYF0021A-K	CASSETTE LID (DECK 2)		42	RJF0001	FL HOLDER	
4	RYF0021-K	CASSETTE LID (DECK 1)				PACKING MATERIAL	
5	XTBS3+8JFZ1	SCREW					
6	RGR0008A-D	REAR PANEL	(P, PC)	P1	RPG0157	CARTON BOX	(PC, E, E5, EB, EG, GC, GN, PE, PX)
6	RGR0008B-I	REAR PANEL	(E5, EG)				
6	RGR0008B-J	REAR PANEL	(E)	P1	RPG0158	CARTON BOX	(P)
6	RGR0008B-K	REAR PANEL	(EB)	P2	RPNO087A	PAD, FRONT	
6	RGR0008B-L	REAR PANEL	(GN)	P3	RPNO087B	PAD, BACK	
6	RGR0008C-C	REAR PANEL	(GC, PE, PX)	P4	SPS5185	PAD, ACCESSORIES	
7	RGU0030	BUTTON, POWER		P5	SPP756	PROTECTION COVER	
8	RGW0012	KNOB, REC. LEVEL				ACCESSORIES	
9	RKA0009-1	FOOT					
10	RMA0050	BRACKET, MECHANISM		A1	RQF0154	INSTRUCTION MANUAL	(EG)
11	RMA0026	BOTTOM BOARD		A1	RQF0155	INSTRUCTION MANUAL	(E, E5)
12	RGG0019	FRONT PANEL ASS'Y	(P, PC)	A1	RQF0156	INSTRUCTION MANUAL	(EB)
12	RGG0020	FRONT PANEL ASS'Y	(E, E5, EB, EG, GC, GN, PE, PX)	A1	RQF0157	INSTRUCTION MANUAL	(GC)
13	SHE187-2	HOLDER		A1	RQF0158	INSTRUCTION MANUAL	(P)
14	SHR6076	ORNAMENT		A1	RQF0159	INSTRUCTION MANUAL	(PC)
15	RGPO078	FRONT GRILLE ASS'Y		A1	RQF0291	INSTRUCTION MANUAL	(GN)
16	SJS9331A	AC OUTLET COVER	(P, PC)	A1	RQF0255	INSTRUCTION MANUAL	(PE, PX)
17	RMA0100	ANGLE		A2	SFDAC05E03	POWER CORD	(E, E5, EG) $\Delta$
18	XTBS3+10JFZ1	SCREW		A2	SJA173-1	POWER CORD	(GN) $\Delta$
19	XTB3+10J	SCREW		A2	SJA172	POWER CORD	(PC) $\Delta$
20	XTB3+20J	SCREW		A2	SJA172-1	POWER CORD	(P) $\Delta$
21	XTB3+6J	SCREW		A2	SJA193-1	POWER CORD	(EB)
22	XTB3+8J	SCREW		A2	RJA0004	POWER CORD	(GC, PE, PX)
23	RMA0113	ANGLE (L)		A3	RFA006	CORD	
24	RMA0114	ANGLE (R)		A4	SJP2257T	REMOTE CONTROL CORD	(P, PC, GC, GN, PE, PX)
25	RGK0049	ORNAMENT, BUTTON		A5	SJP9215	AC PLUG ADAPTOR	(GC, PE, PX)
26	RGK0051	ORNAMENT, EDIT BUTTON					
27	RGU0064A	BUTTON, OPERATION					
28	RGK0076-1	METER FILTER					
29	RGU0066	BUTTON, EDIT					
30	RGU0067	BUTTON, REVERSE					
31	RGU0094	BUTTON, DOLBY					
32	RGU0070	BUTTON, EJECT					
33	RKF0020A-1	CASSETTE HOLDER					
33-1	QBP2006A	SPRING, TAPE PRESSURE					
34	RMA0051	EJECT ANGLE					
35	RJR0016	BRACKET					
36	RME0026	SPRING, CASSETTE HOLDER					